

# LIZARDS AND SNAKES FROM SOUTHWESTERN ASIA, COLLECTED BY HENRY FIELD

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## CONTENTS

|                       |     |
|-----------------------|-----|
| Abstract .....        | 327 |
| Introduction .....    | 327 |
| Localities .....      | 328 |
| Methods .....         | 328 |
| Systematics .....     | 331 |
| Lacertilia .....      | 331 |
| Gekkonidae .....      | 331 |
| Agamidae .....        | 335 |
| Lacertidae .....      | 341 |
| Scincidae .....       | 359 |
| Amphisbaenia .....    | 361 |
| Trogonophidae .....   | 361 |
| Ophidia .....         | 361 |
| Typhlopidae .....     | 361 |
| Boidae .....          | 362 |
| Colubridae .....      | 362 |
| Elapidae .....        | 366 |
| Viperidae .....       | 366 |
| Discussion .....      | 367 |
| Acknowledgments ..... | 370 |
| Bibliography .....    | 370 |

## ABSTRACT

The squamate reptiles (428 specimens; 63 species and subspecies) collected by Dr. Henry Field in Syria, Iraq, Saudi Arabia, Iran, and West Pakistan (Peabody Museum-Harvard Expeditions, 1950 and 1955) are described. Each form is treated under the following headings: material examined (and localities), pholidosis, measurements, coloration, and remarks. Emphasis is put on the relatively abundant

material of the genera *Agama*, *Acanthodactylus*, *Ophisops*, and *Eremias*. The meristic variation of large series is summarized in histograms and statistical tables. Two new forms are described: *Agama persica fieldi* and *Eremias brevirostris fieldi*. Several probable novelties are pointed out. The concluding discussion begins with a brief presentation (with map) of the two main views on the zoogeographical subdivision of Southwestern Asia: according to Bodenheimer, the Mediterranean Sub-region of Wallace is composed of three Sub-regions, Mediterranean, Irano-Turanian, and Saharo-Sindian, which together occupy a greater area than Wallace's Mediterranean. Regional species lists (of the above material) follow.

## INTRODUCTION

The collection here reported on consists of 428 specimens of lacertilians, amphisbaenians, and ophidians, comprising at least 63 species and subspecies. It constitutes the squamate part of the herepetological material that was assembled by Dr. Henry Field during the Peabody Museum-Harvard University Expeditions of 1950 and 1955 (the amphibians and chelonians have not been examined by us). The material has been collected in Iraq, Iran, Syria, Saudi Arabia, the Persian Gulf (Bahrain Island and Trucial Oman Coast), and West Pakistan.

The huge area concerned (roughly 2400

<sup>1</sup> Attention is called to a paper by Loveridge (1959: 226-227) in which determinations are given for some specimens from West Pakistan (Baluchistan and Sind) and Saudi Arabia (Al Uqair).

km in W-E direction) presents strongly divergent landscapes, climates, and habitats, and its herpetofauna accordingly appears to be very diversified, few species (not to mention subspecies) ranging throughout the area. Indeed, the rich reptile fauna of Southwestern Asia is rather inadequately known. It is significant that since the publication of the second edition of the herpetological part of the Fauna of British India (Smith, 1931, 1935, 1943), a survey on herpetology has been compiled for only one of the five countries treated here (Iraq—Khalaf, 1959). Other relatively comprehensive recent papers, which we found particularly useful, are those on reptiles from Iran by S. C. Anderson (1963) and on the reptiles of West Pakistan by S. A. Minton (1966).

As will be seen, the present collection has two merits that greatly enhance its contribution to the knowledge of the herpetofauna of Southwestern Asia. First, many forms are represented by several specimens, or even by considerable series, from each of several localities. Second, much of the material originates from regions from which very few, if any, reptiles have hitherto been available. This applies in particular to the Luristan mountains in Iran and to the Makran hills of Baluchistan in West Pakistan (cf. Minton, 1966: 38).<sup>1</sup>

A number of presumably new subspecies, and perhaps species, are included in the collection, but in most cases we contented ourselves with merely pointing these out, since they should be treated by future revisers of the groups concerned in a more thorough manner than is feasible here. New forms are described here in only two instances, in which the material was particularly ample, distinct, and uniform: *Agama persica fieldi* and *Eremias brevirostris fieldi*. We are delighted to have had this opportunity to record both our recognition of Dr. Henry Field's continuous contribution, since 1927, to the advancement of the herpetology of South-

western Asia and our own manifold indebtedness to him.

## LOCALITIES

### Figures 1, 2

All the localities at which material has been collected, in Syria, Iraq, and Iran, have been indicated on a tracing of a 1:4,000,000 map (Bartholomew, 1959, "The Middle East") by the collector, Dr. Field. These are represented as solid circles in Figure 1, whereas additional points of reference are represented as hollow circles. Localities in Saudi Arabia are given in Figure 2 (except Turaif, included in Fig. 1). Stations refer to Iraq Petroleum Company (IPC) Pipeline Stations.

### LIST OF LOCALITIES IN WEST PAKISTAN

Big Kapoto, 10 mi. S of Kalat, Baluchistan  
Quetta, Baluchistan

Nag, 75 mi. NE of Panjgur, Baluchistan

Little Kapoto, 10 mi. S of Kalat, Baluchistan

Pasni, Baluchistan

Saradoo, 28 mi. S of Panjgur, Baluchistan

Shahi-Tump near Turbat, Baluchistan

Shahi River, Kalat, Baluchistan

Zallaq, 5 mi. S of West Pakistan

*Note.* For locations see traverse maps in Field (1959).

## METHODS

The techniques and procedures involved, although simple, are less standardized than is implied by the lack of explanations in most papers of this kind. The following statements may therefore be useful.

Regarding *taxonomic usage* we have followed, as far as feasible, the recommendations of Mayr, Linsley, and Usinger (1953). *Terms* are employed, as far as possible, in agreement with definitions cited in the Dictionary of Herpetology (J. A. Peters, 1964b).

*Synonymy* and references are given, under the heading for each species or subspecies, only to the extent required to justify and explain the name used.



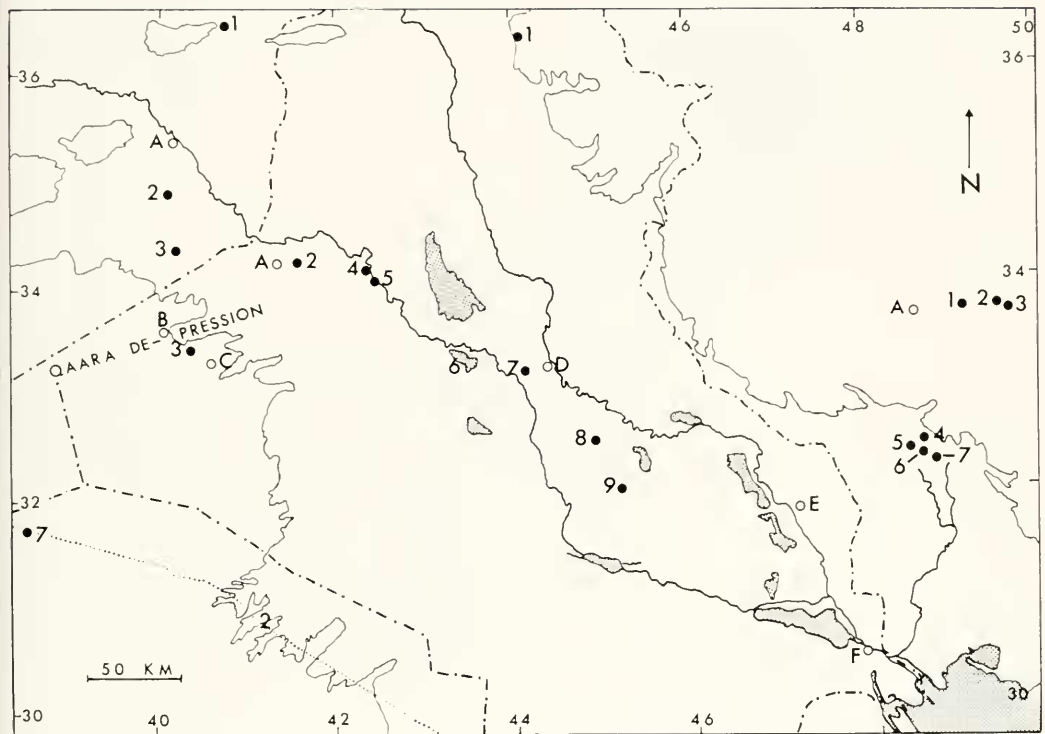


Figure 1. Sketch map of Iraq, western Iran, and adjacent territories. Collecting sites—solid circles. Other localities of interest or for reference—hollow circles. Key in text.

#### KEY TO FIGURE 1

##### SYRIA

- 1 Wadi Sukhura near Jebel Abdul Aziz, W of Hasseké (Hassetché)
- 2 20 mi. N of Station T-2
- 3 3 mi. NW of Station T-2
- Qariatein-IPC Pipeline (excluded from map; ca. 50 km NE of Qariatein)
- A Deir-ez-Zor

##### IRAQ

- 1 Hawdian, at foot of Jebel Baradost near Ruwanduz (Rowandiz)
- 2 10 mi. E of Station T-1
- 3 Near Station H-2
- 4 Haditha, on the Euphrates
- 5 Station K-3 near Haditha
- 6 Lake Habbaniya
- 7 Abu Ghraib, W of Baghdad
- 8 Kish area, E of Hillah

##### 9 Afaq (Afej)

Qaara Depression, N of Rutba

##### A Station T-1

B Bir Molusi (Meloza), N of Rutba

##### C Station H-2

D Baghdad

E Hor al-Hawiza, east of Amara

F Basra

##### IRAN

1 Zagheh

2 Dorud

3 Mazuo

4 Shalgahi

5 Dizful

6 Mahor Birinji

7 Gotwand

A Khurramabad (Khorramabad)

##### SAUDI ARABIA

2 Trans-Arabian Pipeline (Tapline)

7 Turaif (ARAMCO Station VI) on Tapline

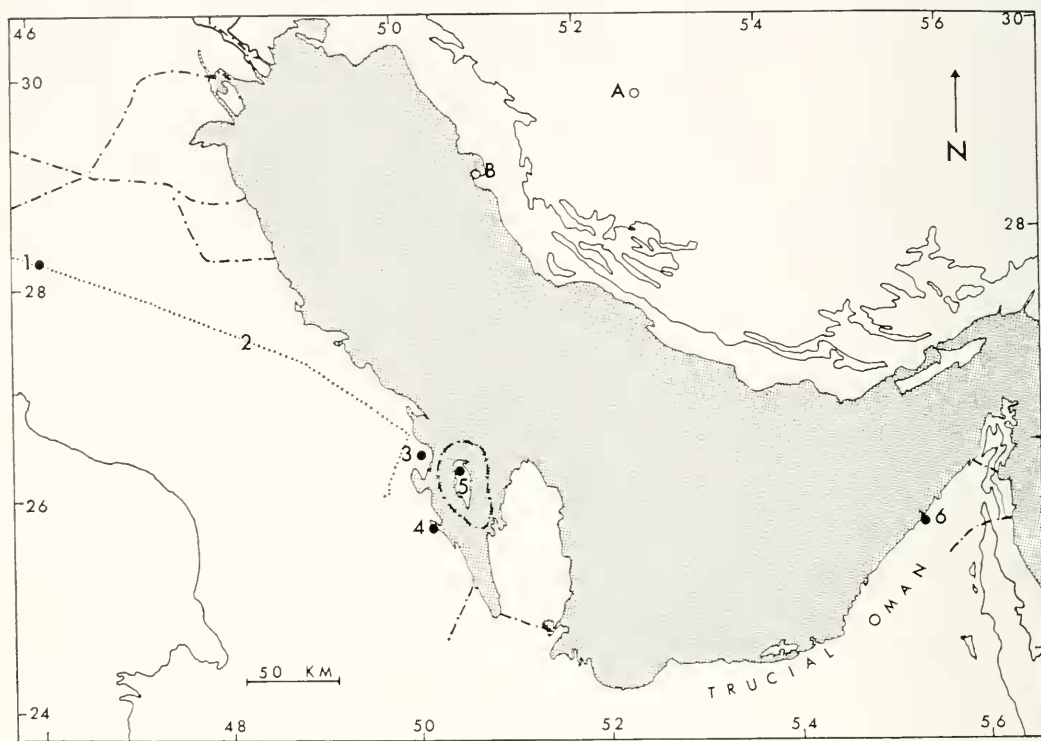


Figure 2. Sketch map of areas surrounding the Persian Gulf. Collecting sites—solid circles. Other localities of interest or for reference—hollow circles. Key in text.

#### KEY TO FIGURE 2

##### IRAN

- A Shiraz
- B Bushire

##### SAUDI ARABIA

- 1 Al-Gaisumah near Turaif on Tapline
- 2 Trans-Arabian Pipeline (Tapline)
- 3 Dhahran
- 4 Al Uqair

##### BAHRAIN ISLAND (No. 5)

##### TRUCIAL OMAN COAST

- 6 Sharjah

Conventional *scale counts* (depending on the genus concerned) were taken at least twice independently (see Acknowledgments), and if satisfactorily repeatable and deemed pertinent, are presented here. Where a series comprises up to five speci-

mens, the individual figures for each character are given in the same order in which the respective specimens are listed under Material Examined. For larger series, the individual counts have, in most cases, been replaced by the following data of the sample: number of specimens (N), observed range (O.R.) of the character, its mean value (M), and its standard deviation (S.D.), based on the formula S.D.

$$\sqrt{\frac{\sum d^2}{N-1}}$$

(where d = deviation of any individual figure from the mean for that character). Thus anyone interested in the coefficient of variability or the standard error can derive these from our tables (Mayr *et al.*, 1953: 134, 141). The *ventrals of snakes* were counted beginning with the first scale

posterior to the gulars that is distinctly wider than long, and excluding the anal (Schmidt and Davis, 1941: 26).

Measurements of *snout-vent length* (= head and body) and of *tail length* were taken by pressing the specimen's ventral surface against a rigid, transparent millimeter ruler. Many of the snakes were strongly contorted, and then the measurements given are means between the results of this method and those obtained by applying a string along the midventral line of the body (which method usually gives too high a figure). All measurements of *head length* were taken parallel to the long axis of the body, by means of a metal ruler provided at its zero line with a broad stopper (against which the specimen's snout would abut) and along which an adjustable indicator could slide. In each case we specify in the text whether head length was taken to the occiput, to the posterior margin of the ear, etc. *Limbs* were measured from the axilla or the groin to the base of the most distal claw. Whenever possible, the limb was measured while it was stretched at a right angle to the body.

The *colors* of the specimens must have faded and changed considerably during the ten to fifteen years that passed between their preservation and our examination of them. Many specimens have obviously been darkened by overexposure to formalin. We therefore comment primarily on the pattern of the coloration, and mention colors only where apparently pertinent. In the circumstances, this is done in common sense terms, without reference to a color dictionary.

Our remarks certainly constitute no exhaustive discussion of each specimen or sample. We have only tried to hint at some of the main problems or (rarely) possible conclusions.

All line drawings were prepared by means of a camera lucida. The ruler included in the photographs shows cm and mm. In the photographs of dorsal scales

we have superimposed on this ruler a scale bar representing 1 per cent of the snout-vent length of the respective specimen (at the same magnification). Thus the size of the scales can be interpreted without further reference to the size of the specimen.

The bibliography includes works both cited expressly in the text and consulted without citation.

## SYSTEMATICS

### ORDER LACERTILIA

#### Family Gekkonidae

#### *Stenodactylus slevini* Haas

##### Plate 1, A-C

*Stenodactylus slevini* Haas, 1957, Proc. Calif. Acad. Sci., (4) 29 (3): 54, fig. 3 (Dhahran, Saudi Arabia).

*Material examined.* SAUDI ARABIA (2): MCZ 56507-08, ♂♂, Saudi Arabia.

*Pholidosis.* The rostral has the typical middorsal depression and cleft. The strongly swollen nostril is surrounded by the rostral and three nasals, the first labial barely avoiding contact with the nostril. Upper labials: 12/12 and 15/15; lower labials: 14/13 and 13/13. Number of granules between superciliary ridges: at midorbital level, 32; 32; between the posterior corners of the eyes, 41; 49. No femoral or preanal pores. Each of the ventral granules, particularly posteriorly, culminates in a rosette of four or five "microtubercles" surrounding a central pit.

*Measurements.* Snout-vent: 52 mm; 54 mm. Tails missing. Diameter of eye (exposed portion): 4 mm.

*Coloration.* Rusty brown, including the ventral side; dorsal side with a close net of a delicate blackish reticulation. (Other preserved geckos in the same collection have retained a relatively lighter color on the ventral side.)

*Remarks.* The close similarity of these specimens to the original types is remarkable. The dark coloration of the ventral parts is very unusual, and may, after all,

TABLE 1. PHOLIDOSIS AND MEASUREMENTS OF *BUNOPUS BLANFORDII* AND *TUBERCULATUS*.

| Locality and MCZ number | Upper labials | Lower labials | Tubercle rows on back <sup>1</sup> | Preal and femoral pores | Lamellae under 4th toe | Snout to vent (mm) | Tail (mm) | Length of 4th toe from insertion of 5th (mm) |
|-------------------------|---------------|---------------|------------------------------------|-------------------------|------------------------|--------------------|-----------|----------------------------------------------|
| <b>Arabia</b>           |               |               |                                    |                         |                        |                    |           |                                              |
| 54407                   | 12/13         | 9/9           | 16                                 | 0                       | 24/24                  | 47.0               | 22.0 + 16 | 8.5                                          |
| 54408                   | 13/13         | 10/10         | 15                                 | 0                       | 20/21                  | 41.5               | 40.5 + 0  | 7.0                                          |
| 56516                   | 10/12         | 10/11         | 15                                 | 0                       | 24/23                  | 49.0               | 48.0      | 7.0                                          |
| <b>Iraq</b>             |               |               |                                    |                         |                        |                    |           |                                              |
| 56514                   | 9/10          | 9/12          | 16                                 | 0                       | 23/23                  | 41.5               | 52.0      | 6.5                                          |
| 56515                   | 10/10         | 9/10          | 15                                 | 10                      | 23/22                  | 40.5               | 50.5      | 7.0                                          |
| <b>Iran</b>             |               |               |                                    |                         |                        |                    |           |                                              |
| 56509                   | 9/10          | 8/9           | 15                                 | 2 <sup>2</sup>          | 17/18                  | 53.0               | 30.0 + 18 | 7.5                                          |
| 56510                   | 10/9          | 10/9          | 15                                 | 0                       | 18/24                  | 34.0               | 39.0      | 5/5.5                                        |
| 56512                   | 11/10         | 10/9          | 16                                 | 0                       | 23/23                  | 42.0               | 50.0      | 6.0                                          |

<sup>1</sup> Including lateral row, on each side, of small tubercles.<sup>2</sup> Since our specimen has the usual caudal tubercles, it is not assignable to *B. biporus* F. Werner (1938: 267).

be an artifact. (It should be stated that the present specimens do not rank as meta-types, as we have not compared them to the types.)

### *Bunopus tuberculatus* Blanford

#### Table 1

*Bunopus tuberculatus* Blanford, 1874, Ann. Mag. Nat. Hist., (4) 13: 454 ("in Gedrosia Persiaque," restricted by Smith [1935]: Baluchistan).

**Material examined.** SAUDI ARABIA (1): MCZ 56516, Saudi Arabia. IRAQ (2): MCZ 56514, 56515, Station K-3 near Haditha on the Euphrates. IRAN (3): MCZ 56509, 4 mi. W of Gotwand; MCZ 56510, 56512, Mahor Birinji.

**Pholidosis.** Nostril surrounded by the rostral, first labial, and three nasals. Meristic characters are detailed in Table 1.

**Measurements.** See Table 1.

**Coloration.** Rather more brownish than grey, and the dark crossbands much broader than in *B. blanfordii* (see below), their pigment not restricted to the tubercles. Tubercles between these bands share the general ground color and are not whitish as in *B. blanfordii*. The head pattern is disposed in a less orderly fashion than in *B. blanfordii*, but a dark lateral band through the eye is usually discernible.

**Remarks.** These animals look rather more heavily built than *B. blanfordii* from Arabia or from southern Israel (personal observation); in particular, the digits are thicker and shorter (see Table 1). The difference in the nature of the subdigital lamellae between the two species is considerable. (See also Remarks under *Cyrtodactylus scaber*.)

### *Bunopus blanfordii* Strauch<sup>1</sup>

#### Table 1

*Bunopus blanfordii* Strauch, 1887, Mém. Acad. Sci. St. Pétersbourg, (7) 35 (2): 61, pl., figs. 13, 14 (Egypt [record believed to be erroneous, Schmidt, 1939: 55]).

**Material examined.** SAUDI ARABIA (2): MCZ 54407-08, ♀♀, Al Uqair, south of Dhahran, 15 February 1955, Dr. and Mrs. Henry Field.

**Pholidosis.** The nostril is surrounded by the rostral, first labial, and three nasals. The series of large preanal pores is continued nearly to the knee in MCZ 54408,

<sup>1</sup> Geckos of the genus *Bunopus* Blanford have been referred by Boulenger (1885, 1: 20) to *Alsophyllax* Fitzinger. Leviton and S. C. Anderson (1963: 335-336) have reinstated *Bunopus* for those species that have dorsal tubercles, among which both *blanfordii* and *tuberculatus* are included.



and three-quarters of the way in MCZ 54407 (J. Anderson, 1896: 21). Meristic characters are given in Table 1.

*Measurements.* See Table 1.

*Coloration.* Dorsally light grey-beige; many of the tubercles, particularly on the flanks, are whitish, the others brown, producing a faint crossband pattern. The head (at least of MCZ 54407) with four pairs of incomplete, brown, longitudinal bands: first, from nostril to upper (anterior) corner of eye; second, through eye onto occiput; third, along upper labials through orbit and to ear; fourth, through lower labials, continued below ear. Tail with alternating brown and whitish half-rings. Ventral parts whitish, very finely mottled with light beige-grey. Regenerated portion of tail light brownish grey, almost uniform dorsally and ventrally.

*Remarks.* The digits of these two specimens are much more slender than those of *B. tuberculatus*, described above. The difference in actual length is expressed in Table 1. (See also Remarks under *Cyrtodactylus scaber*.)

### *Cyrtodactylus scaber* (Heyden)

*Stenodactylus scaber* Heyden, 1827, in Rüppell, Atl. Reise Nördl. Afr., Rept., p. 15, pl. 4, fig. 2 ("Umgebung von Tor, Sinai"—Mertens, 1922).

*Gymnodactylus scaber*: Duméril and Bibron (in part), 1836, Erpétol. Gén., 3: 421.

*Cyrtodactylus scaber*: Underwood, 1954, Proc. Zool. Soc. London, 124 (3): 475.

*Material examined.* IRAQ (1): MCZ 56501, ♀, Afaq. IRAN (1): MCZ 56500, ♀, Shalgahi. TRUCIAL OMAN COAST (1): MCZ 56502, ♂, Sharjah.

*Pholidosis.* Internasal granules: 1; 1; 2. Upper Labials: 8/9; 9/11; 9/10. Lower labials: 9/9; 8/8; 8/8. Number of pairs of chin shields behind the postmentals (which meet): 1; 1/2; 1. Dorsal tubercles in 10 ( $\pm$ ) longitudinal rows. The male has four preanal pores.

*Measurements.* Snout-vent: 32 mm; 30.5

mm; 35 mm. Only the second specimen has a complete tail; about 42 mm.

*Coloration.* Brownish grey. Back with three longitudinal series of darker brown blotches; the vertebral series continued onto the tail as dark half-rings. Ventral side somewhat lighter, excepting the distal quarter of the tail, which is as dark ventrally as dorsally.

*Remarks.* Specimens of *Cyrtodactylus scaber* are sometimes confused with *Bunopus*, because the classical distinguishing character—the angulated digits of the former—is easily misinterpreted. However, the appearance of *C. scaber* is really quite different from that of *Bunopus*, owing to the perfectly regular arrangement of the large dorsal tubercles in the former (but not in the latter). The presence of postmentals and chin shields in *C. scaber* (absent in *Bunopus*) constitutes a convenient criterion for conclusive differentiation.

### *Pristurus cf. rupestris* Blanford Plate 1, D

*Pristurus rupestris* Blanford, 1874, Ann. Mag. Nat. Hist., (4) 13: 454 (Muscat and Island of Karrack near Busheer [Bushire], Persian Gulf).

*Material examined.* PERSIAN GULF (5): MCZ 56517–21, Bahrain Island and Sharjah, Trucial Oman Coast.

*Pholidosis.* Internasal granules: 0–2 (1 in three specimens). Nostril surrounded by the rostral and three nasals. Upper labials: 5–7 (mean: 6.4). Lower labials: 3/4–5 (mean: 4.3). No dorsal ridge, nor tubercles on the flanks. Lamellae under 1st toe: probably 13 (starting point uncertain); under 4th toe: 23–25 (mean: 23.8).

*Measurements.* Snout-vent: 24.5–27 mm. All tails missing, broken at the base. Adpressed hindlimb reaches between shoulder and ear. Diameter of eye, about 1 1/4 mm (uncertain due to shrinkage); snout nearly 2.5 times as long.

*Coloration.* Two specimens have a light vertebral line and indications of five asymmetrical light transverse lines. The other

specimens are uniformly colored dorsally. All have the side of the head with a dark line through the round pupil, and the throat spotted with roundish blackish dots, each two to four granules in diameter. On the sides of the throat the spotted area extends backwards towards the axillae.

*Remarks.* The identification of this series remains doubtful because the number of labials is too low compared to Loveridge's data (1947: 73). The absence of tails presents a particular difficulty in the identification of *Pristurus* species. Our specimens do resemble *P. r. iranicus* Schmidt (1952: 2; 1955: 201–202) in the pattern of the throat and apparently in the length of the snout, which is longer than in typical *rupestris* (Smith, 1935: 64, fig. 20). The pholidotic characters, however, are not in agreement.

#### *Phyllodactylus elisae* (F.) Werner

*Phyllodactylus elisae* Werner, 1895, Verhandl. Zool.-Bot. Ges. Wien, 45; 14, pl. 3, fig. 1 a-e (Nineveh near Mosul, Iraq).

*Material examined.* IRAN (1): MCZ 56504, Mazuo.

*Pholidosis.* Upper labials: 12/13. Lower labials: 8/9. Dorsal tubercles: 14 in a diagonal row across the back.

*Measurements.* Snout-vent: 43 mm. Tail broken.

*Coloration.* Brown, tubercles and ventral side lighter.

*Remarks.* The presence of 14 rows of tubercles on the back is interesting; Werner's types had 10–12, and this seems to be the condition in Iraq generally (Khalaf, 1959), as we can confirm from two specimens (HUI-R 1685) brought by Professor O. Theodor from Iraq in 1928. S. C. Anderson (1963), who reports on 18 specimens from Iran (collected not far from the locality of our specimens), makes no comment on this point.

#### *Ptyodactylus hasselquistii* ssp.

*Lacerta hasselquistii* Donndorff, 1789, Zool. Bytr., 3: 133 (Cairo, Egypt).

*Ptyodactylus lobatus*, Gray, 1825, Ann. Philos., (2) 10: 198.

*Ptyodactylus hasselquistii*: Duméril and Bibron, 1836, Erpétol. Gén., 3: 378, pl. 33, fig. 3.

*Material examined.* IRAQ (2): MCZ 56505–06, ♂♂, Station K-3 near Haditha on the Euphrates.

*Pholidosis.* The two specimens are nearly identical. The following data are given for comparison with Loveridge's table (1947: 279). Internasal granules: 1. Nasals surrounding nostril: 3 (nasal region elevated, nearly tubular). Upper labials: 12. Lower labials: 12; 10/11. Tubercle rows on back: 10 (tubercles small, conical, high). Scansors under 1st toe: 4(?), under 4th toe: 10/11; 10. (Lamellae under 1st toe 8+8, and under 4th toe 9+9.) Tubercle rows on tail: 1+1.

*Measurements* (the larger male). Snout-vent: 62 mm. Tail: 56 mm.

*Coloration.* Light brown with both lighter and darker spots. The light spots are whitish beige, somewhat roundish, and about 7–10 granules in diameter, excepting a series of vertebral blotches which are larger and less regular in shape and which continue onto the tail as light half-rings. The dark spots are blackish brown, larger than the light ones, and irregularly scattered among them, sometimes bordering on them; occasionally a dark spot surrounds a whitish one. Both types of spots combined cover roughly as much of the dorsal area as the ground color; from a distance, the animal looks mottled haphazardly in these three hues.

*Remarks.* Of the few specimens of this species recorded from Iraq, two from Haditha have been assigned by Schmidt (1939) to *P. h. hasselquistii*. Khalaf (1959) also says, "*P. hasselquistii hasselquistii* (Donndorff) is the probable subspecies in Iraq." However, the present specimens differ from those from Cairo (and southern Israel) in their less slender body proportions, shorter tail, and lower number of tubercle rows on the tail. It would not be prudent to base a new subspecies on these

two specimens; the more so since this species is well known for its high geographical variability (Flower, 1933; Y. L. Werner, 1965) and uncertain taxonomy (Loveridge, 1947; Wermuth, 1965). In general habitus and, especially, in coloration, our present two specimens resemble a series collected by Mr. Zimmer at Sabkha, on the Euphrates, in northeast Syria.

### *Hemidactylus flaviviridis* Rüppell

*Hemidactylus flaviviridis* Rüppell, 1835, Neue Wirbelth.-Fauna Abyss., Amph., p. 18, pl. 6, fig. 2 (Massawa Island, Eritrea).

**Material examined.** TRUCIAL OMAN COAST (1): MCZ 56503, ♀, Sharjah. WEST PAKISTAN (1): MCZ 54409, ♂, Shahi-Tump at Turbat, Baluchistan, 21 March 1955, Field.

**Pholidosis.** Upper labials: 15/16 (the 3 last very low); 12/12. Lower labials: 12/13; 8/10. No dorsal tubercles. Femoral pores: 0; 6/9. Lamellae under 4th toe: 13/14 (proximal ones tiny); 11/12.

**Measurements.** Snout-vent: 59 mm; 71 mm. Tails missing.

**Coloration.** On the grey-beige dorsum of MCZ 54409 there are five narrow, lighter, undulating crossbands. The dorsal skin on the other specimen is damaged.

### Family Agamidae

#### *Calotes versicolor* (Daudin)

*Agama versicolor* Daudin, 1802, Nat. Hist. Rept., 3: 395, pl. 44 (India).

*Calotes versicolor*: Jerdon, 1853, J. Asiat. Soc. Bengal, 22: 470.

**Material examined.** WEST PAKISTAN (1): MCZ 54421, Nag, 4000 ft., 75 mi. NE of Panjgur, Baluchistan, 30 March 1955.

**Measurements** (half-grown). Snout-vent: 79 mm. Tail: 192 mm.

**Coloration.** Traces of seven dark crossbands on the body, and 28 dark rings on the tail, the first three to four incomplete ventrally, the last three to four confluent. Throat with about seven pairs of longitudinal (oblique) dark lines, partly continued onto the belly.

#### *Agama agilis* ssp.

##### *(Agama agilis agilis* Olivier)

*Agama agilis* Olivier, 1807, Voy. Emp. Othoman, 4: 394, pl. 29, fig. 2 (neighborhood of Baghdad).

*Agama agilis agilis*: Wettstein, 1951, Sitzungsber. Akad. Wiss. Wien, Math.-Naturw. Kl., Abt. 1, 160 (5): 433.

##### *(Agama agilis isolepis* Boulenger)

*Agama isolepis* Boulenger, 1885, Cat. Lizards Brit. Mus., 1: 342.

*Agama agilis isolepis*: Wettstein, 1951, Sitzungsber. Akad. Wiss. Wien, Math.-Naturw. Kl., Abt. 1, 160 (5): 434.

**Material examined.** IRAN (6): MCZ 56832–56837, Mahor Birinji. WEST PAKISTAN (8): MCZ 54413, Quetta, Baluchistan: MCZ 54414, Saradoo, 28 mi. S of Panjgur, Baluchistan, 24 March 1955; MCZ 54415, Shahi River, Kalat, Baluchistan, 21 March 1955; MCZ 54416–54420, Nag, 4000 ft., 75 mi. NE of Panjgur, Baluchistan, 30 March 1955.

**Pholidosis.** Scales around midbody: Iran, about 80–95; Pakistan, about 60–75, but 90 in MCZ 54414 (the single specimen from Saradoo). The taxonomy of this Rassenkreis appears to be more complicated than was assumed by Wettstein (1951). According to Wettstein, the Baluchistan population would belong to *isolepis* and the Iraq-North Iran populations to *agilis*. In our material, however, the specimens from Saudi Arabia (see later under *A. e. fieldi* n. ssp.) and from Iran conform to *isolepis* in the naris, which is clearly above the canthus rostralis (Boulenger, 1885). On the other hand, in most specimens from Pakistan the naris is just at or a trifle below the canthus (*A. agilis*, Boulenger, 1885). Only in MCZ 54420, a juvenile, is the naris clearly above the canthus and pointing directly upwards, not dorso-caudally as in the other specimens. Specimen 54420 is also remarkable for a rosette of six enlarged scales surrounding the pineal scale. Unlike those of the other specimens, its head scales are rather smooth and not convex, and its dorsal scales have

flat keels and are not mucronate. The spiny scales at the upper margin of the ear are fairly well developed in the specimens from Baluchistan. These spines are very short (not easily discernible) in the specimens from Iran.

The dorsal scales of the *isolepis*-like specimens from Iran show a rather abrupt change from the larger scales of the median area to the smaller lateral scales. This characteristic of *isolepis* has already been noted by Steindachner (1917: 14a). In all the specimens from Baluchistan this transition is very gradual. It is significant that Smith (1935) criticized Boulenger's (1885) separation of *isolepis* from *agilis*; whereas Boulenger (1890) regarded the specimens from India (and Baluchistan) as *isolepis*, Smith (1935) regarded them as *agilis*. Our materials from Baluchistan, by Boulenger's own criteria, fall mostly within *agilis*, only the one specimen 54420 being more *isolepis*-like.

*Measurements.* Largest from Iran (cf. *isolepis*)—Snout-vent: 94 mm. Tail 137 mm. Largest from West Pakistan (cf. *agilis*)—Snout-vent, 90 mm. Tail 167+ mm (incomplete; the next largest specimen, snout-vent 80 mm, has a tail of 148 mm).

*Coloration.* Iranian specimens (cf. *isolepis*)—Females have five dark dorsal crossbands between occiput and pelvis, each interrupted by five longitudinal light streaks. The dark half-rings of the tail likewise are interrupted by a light vertebral streak. The throat is adorned with about fifteen undulating dark longitudinal lines. Males are darker, with the dorsal pattern more diffuse and a blackish latero-ventral zone; their throats are blackish medially, but laterally the female's pattern persists. A photograph of a male, female, and juvenile, with the same pattern as our specimens, has been published by S. C. Anderson (1963: 448, fig. 11).

West Pakistanian specimens (cf. *agilis*)—Dorsal pattern not discernible except for the light and dark half-rings on the

tail. In the females, the throat is mottled with irregular dark and light longitudinal bands, the belly has a median straight dark band, and on either side about three undulating longitudinal bands. In the males, the throat and the ventrolateral areas are suffused with blackish, covering most of the aforementioned pattern. A photograph of a live male has recently been published by Minton (1966: pl. 17, fig. 2).

*Remarks.* The discussion by S. C. Anderson (1963: 444–451) should be consulted.

### *Agama cf. persica* Blanford

#### Figure 3, B, C

*Agama persica* Blanford, 1881, Proc. Zool. Soc. London, 1881: 674, pl. 59 (Iran: Dehbid and Kázerun).

*Material examined.* IRAQ (1): MCZ 56557, ♂, Kish area, Hillah Liwa. SAUDI ARABIA (1): MCZ 56860, ♂, between Al-Gaisumah and Turaiif.

*Measurements.* Iraq specimen—Snout-vent: 89 mm. Tail incomplete. Arabian specimen—Snout-vent: 118 mm. Tail: 181 mm.

*Remarks.* In pholidosis, both these specimens agree fairly well with Blanford's description, but there are certain discrepancies which preclude a conclusive determination. Thus, both have a laterally compressed tail, instead of a cylindrical one. The difference between the specimens is also disturbing: whereas the Saudi Arabian specimen has a straightly sloping forehead, that of the other is very convex and short. The Arabian specimen resembles Blanford's plate more closely than the other, yet the Iraq specimen shows traces of the (required) dark crossbands, whereas the Saudi Arabian animal is nearly uniform, occasional whitish tubercles excepted. Its tail has remnants of dark rings. The ventral coloration of neither agrees with Blanford's description: the Arabian specimen has a blackish throat and, along the belly, a grey median band and grey ventrolateral areas; the Iraq specimen has



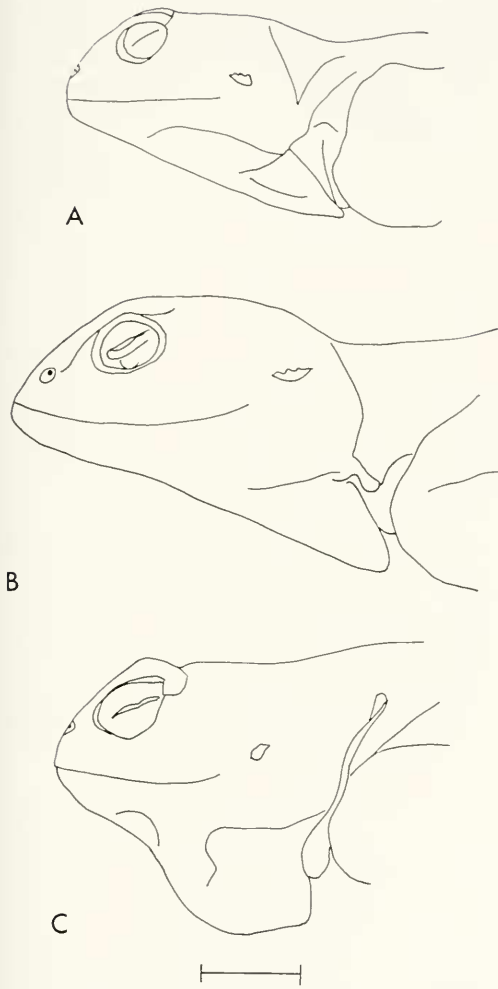


Figure 3. *Agama persica* spp. Outline of head, lateral view, af:

- A, *A. p. fieldi* subsp. nov., MCZ 56866, ♂ from Saudi Arabia (between Al-Gaisumah and Turaif).  
 B, *A. cf. persica*, MCZ 56860, ♂ from Saudi Arabia (between Al-Gaisumah and Turaif).  
 C, *A. cf. persica*, MCZ 56857, ♂ from Iraq (Kish area).  
 All drawn to same scale. Scale bar: 10 mm.

three dark longitudinal bands along the whole trunk.

Apparently the taxonomic unit *persica* is a composite; a revision of this group of populations (possibly, of species), based on all available material, is desirable.

*Agama persica fieldi* subsp. nov.

Figure 3, A; Plates 2–6

(?)*Agama isolepis* Steindachner, 1917, Ann. k. k. Naturhist. Mus. Wien, 31: 147–149, pl. 3. (Mesopotamia: El Widian and Tekrit).

*Holotype*. Male, MCZ 56866, between Al-Gaisumah and Turaif, Saudi Arabia. Collected by Field in 1950.

*Paratypes*. Six: males, MCZ 56861–63 and 56867; females, MCZ 56864–65. Same locality and collector.

*Other material*. Two: male, MCZ 56859; female, 56858. Same locality and collector.

*Diagnosis*. Differs from *Agama persica persica* Blanford 1881 in having a conspicuous dorsal pattern of dark and light longitudinal bands and a distinct, though fainter, comparable ventral pattern; differs from *A. agilis* Olivier 1807 and *A. isolepis* Boulenger 1885 in the dorsal striped pattern and in that many specimens possess scattered enlarged dorsal scales.

*Description of holotype*. A male. Head longer than broad, with very convex forehead. Canthus rostralis continued as a superciliary ridge. Nostril on, barely above, the canthus, pierced in a flat shield. Upper head scales of two main types: anterior to the pineal spot, subimbricate, convex, some even pyramidal; posterior to the pineal spot, imbricate, keeled, and the most posterior mucronate. A double row of mucronate scales borders the ear from above and is continued to the end of the lateral surface of the head. Those of the lower row point downward, giving the ear opening an elongated appearance. Typical double gular pouch, the posterior fold extending onto the shoulder; but the pouch proper less deep than in typical *persica*. Body slightly depressed, head and body flatter than in other *persica*. Dorsal scales all strongly imbricate and distinctly keeled, otherwise variable. Four median rows are present. On each side there are two rows of larger scales that are distinctly mucronate, with upturned points. Further laterally the scales gradually diminish, those on the lower flank being smaller, having half the



length, or less, of the largest dorsolateral, mucronate scales. Ventral scales somewhat larger, rhomboidal, imbricate, and keeled. Among the scales on back and flanks there are occasional enlarged ones, about one and a half times as long as their neighbors. Altogether 76 scales around the middle of the trunk. Dorsal scales of limbs similar to middorsal scales; dorsal scales of tail similar to larger dorsolateral scales; all scales of these parts, excluding the smallest scales inside elbow and knee, are keeled. Limbs as in typical *persica*; tibia as long as head (to posterior border of ear). A single row of seven preanal pores. Scale rows of tail: 16 (counted between the proximal and middle thirds of the tail length).

## MEASUREMENTS OF HOLOTYPE

|                                              | MM  |
|----------------------------------------------|-----|
| Total length . . . . .                       | 245 |
| Snout-vent . . . . .                         | 92  |
| Head to occiput . . . . .                    | 17  |
| Head to posterior border<br>of ear . . . . . | 22  |
| Head to jaw angle . . . . .                  | 25  |
| Head width . . . . .                         | 20  |
| Trunk length . . . . .                       | 75  |
| Forelimb . . . . .                           | 42  |
| Hindlimb . . . . .                           | 64  |
| Tail . . . . .                               | 153 |

*Coloration of holotype.* A prominent pattern of longitudinal dark and light stripes. A light grey vertebral band of uneven width, with four constrictions between thorax and pelvis; this coincides with band of next-to-largest middorsal scales. On either side are three dark brownish bands, similarly of uneven width, with blackish margins, the ground color between them mottled with brown. Of the dark bands, the dorsal pair is the most conspicuous, the ventralmost pair the least so, merging with the flank's pattern. The latter is blackish brown, speckled with whitish spots, each of which occupies an enlarged scale. The dark bands are continued onto the head to the level of the posterior corner of the

eye. Above the eyes, a pair of brown patches, and above the anterior corner of the eyes, an undulating crossband (shaped like an expanded M). On the tail, the pattern of bands gradually changes to one of blotches, followed by rings (on the distal half), each dark ring interrupted middorsally (except the few last ones). Similarly, brachium and femur with longitudinal bands, antebrachium and crus with transverse blotches. Throat with about 15 blackish lines, the lateral ones arranged on each side in three pairs, the medial ones confluent. Ground color of belly and ventral aspect of limbs a very light brown; belly with three darker grey longitudinal bands, the two lateral ones interrupted behind the axillae.

*Variation of the type series.* The range of the number of scale rows for the whole series ( $N=7$ ) is 73–88, and the mean, 78.8. The four *male paratypes* resemble the holotype in all pertinent details. Scales around the middle of the trunk: 73; 80; 83; 77. No paratype is larger than the holotype. One male, MCZ 56862 has the dark throat pattern bluish black.

The two *female paratypes* have only traces of enlarged scales on back and flanks; these are the same color as their neighbors. Scale rows: 75; 88. The preanal pores are minute, each occupying the tip of a scale. The largest specimen measures 105 mm snout to vent, 167 mm tail (MCZ 56865). The throat pattern is best described as consisting of nine dark longitudinal bands, most of these being darker at their margins.

*Range.* Former material apparently assignable to the same form includes at least single specimens from El Widian and from south of Tekrit in Iraq (Steindachner, 1917), and one from Qa el Umari in north-eastern Jordan (Y. L. Werner, in MS).

*Remarks.* This form is apparently allied both to *Agama persica* Blanford and to the *agilis-isolepis* complex. Since, presumably, specimens of the new forms collected in recent years have usually been referred to

*persica*, it seems most useful, at least for the time being, to regard the new form as a subspecies of the latter. This course is particularly justified by the close resemblance between the two in pholidosis and in the structure of the double gular fold; on the other hand, the subequal scales and somewhat depressed proportions argue for the relationship to *agilis-isolepis*.

*Other material.* The male and female entered under this heading above and collected on the same occasion as the type and paratypes are outstanding in having a mediodorsal stripe of very small scales, each slightly more than half the length of the neighboring dorsolateral scales. This median stripe of small scales extends from the occiput to the base of the tail. Furthermore, these two specimens have a paler coloration throughout, so that the belly has practically no pattern. The number of scale rows is within the range of *A. p. fieldi*: male, 74; female, 87. In the absence of further material, these two specimens may perhaps be regarded tentatively as an extreme form of *A. p. fieldi*.

### *Agama pallida* Reuss

*Agama pallida* Reuss, 1833 (1834), Mus. Senckenb., 1: 38, pl. 3, fig. 3 (type locality in dispute—see Flower, 1933: 769).

*Material examined.* SYRIA (1): MCZ 56868, 10 mi. E of Station T-1. IRAQ (4): MCZ 56839, Haditha, on the Euphrates; MCZ 56840–56842, Station H-2. SAUDI ARABIA (14): MCZ 56843–56856, between Al-Gaisumah and Turaif.

*Pholidosis.* All these specimens have smooth ventrals (this comment is made because *Agama agnetae* Werner 1929, from Bir Meloza in Iraq, is distinguished by its keeled ventrals from *A. pallida* Reuss). In the specimens from Iraq and, especially, in the one from Syria, the small dorsals are keeled, as well as the large ones. In MCZ 56839, the dorsal tubercles form conspicuous transverse rows. In all specimens the ear is bordered above by three to four spines.

*Measurements.* Syria, a young male—Snout-vent: 57 mm. Tail: 71 mm. Iraq, largest male—Snout-vent: 76 mm. Tail: 96 mm. The largest female (containing eggs, obviously in the oviducts)—Snout-vent: 84 mm. Tail: 85 mm. The Arabian specimens are unusually large, with more slender proportions than those from Egypt, Sinai, or Israel. Largest male—Snout-vent: 93 mm. Tail: 127 mm. Largest female—Snout-vent: 91 mm. Tail: 106 mm.

*Coloration.* Syria and Iraq—The four dorsal transverse bands are inconspicuous, but usually the middorsal light interruption is discernible. On the tail there are about 12 dark crossbands. The throat is adorned with about 14 irregular dark grey lines. Saudi Arabia—The pattern is much less distinct, so that the dorsal crossbands are hardly discernible, and on the tail the crossbands (each uninterrupted, as in Iraq) are distinct only throughout the proximal two-thirds, or even half. The pattern of the throat is also more diffuse.

*Remarks.* All these specimens are quite different from those of eastern Egypt, Sinai, and southern Israel. The difference is even more marked when the material is taken as a whole, for in Israel males are much smaller than females. A study of this supposedly new form is at present under way (Y. L. Werner, in MS) on the basis of Jordanian material.

### *Agama melanura* Blyth

*Laudakia (Plocoderma) melanura* Blyth, 1854, J. Asiat. Soc. Bengal, 23: 738 (? Salt Range, Punjab).

*Agama melanura*: Boulenger, 1885, Cat. Lizards Brit. Mus., 1: 363.

*Material examined.* WEST PAKISTAN (1): MCZ 54412, Big Kapoto, 13 mi. S of Kalat, Baluchistan 4 April 1955.

*Pholidosis.* Dorsal scales are smooth. According to Smith (1935: 218), this is typical of specimens from the northern part of the range. The caudal scales are arranged in barely distinct annuli.

*Measurements.* Snout-vent: 121 mm. Tail: 207 mm.

*Coloration.* Black dorsally, and blackish grey ventrally. The tail is black ventrally, too, except for a light patch at its thick base. The lower sides of manus and pes are likewise relatively light colored.

### *Agama nupta nupta* De Filippi

*Agama nupta* De Filippi, 1843, Giorn. 1st Lomb. Bib. Ital., 6: 407 (Persepolis).

*Agama nupta nupta*: Minton, 1966, Bull. Amer. Mus. Nat. Hist., 134 (2): 91-2.

*Material examined.* IRAN (1): MCZ 56838, Mahor Birinji.

*Pholidosis.* Enlarged dorsal scales in 16 rows.

*Measurements* (large female). Snout-vent: 144 mm. Tail: 215+ mm (tip missing).

*Coloration.* Dark Brown. Flanks mottled with roundish light brown spots. Almost all of the enlarged scales (middorsal and those on the limbs) are actually very dark brown with a lighter margin. The ventral parts are light brown; throat irregularly mottled with black; abdomen and hindlimbs rather yellowish.

### *Agama caucasica* ssp.

*Stellio caucasicus* Eichwald, 1831, Zool. Spec., 3: 187 (Tiflis and Baku, Caucasus).

*Agama caucasica* Boulenger, 1885, Cat. Lizards Brit. Mus., 1: 367.

*Material examined.* WEST PAKISTAN (1): MCZ 54411, Little Kapoto, 10 mi. S of Kalat, Baluchistan, 4 April 1955.

*Pholidosis.* About 175 scales around midbody (against 150-160 according to Boulenger). A narrow middorsal band of enlarged, weakly mucronate scales, six scales broad. On either side a dorsolateral band, about 50 scales broad, of tiny scales. On the flank 10 rows of very spiny scales. Groups of spines, especially in the cervical region. Our specimen is a male; the ventral patch of "pores" is about 23 scales long, about 8 wide. Two to three irregular preanal rows.

*Measurements.* Snout-vent: 134 mm. Tail (incomplete): 154 mm.

*Coloration.* Very dark. The throat is spotted with distinct lighter spots: several small roundish ones anteriorly, and three large, longitudinal ones posteriorly.

*Remarks.* Although this single specimen agrees in certain respects with Guibé's (1957) *A. c. mucronata* from Iran, it differs from the latter in that, amongst other things, its tympanum is not wider than the eye, and there are no spines around the tympanum.

### *Phrynocephalus scutellatus* (Olivier)

*Agama scutellata* Olivier, 1807, Voy. Emp. Othoman., 3: 110; 5: 196; Atlas, pl. 42, fig. 1 (near Isphahan, now Isfahan, Persia).

*Phrynocephalus olivieri* Duméril and Bibron, 1837, Erpétol. Gén., 4: 517.

*Phrynocephalus scutellatus*: Smith, 1935, Fauna Brit. India, Rept. Amph., 2: 229.

*Material examined.* WEST PAKISTAN (24): MCZ 54422-29 and 12 unnumbered specimens, Nag, 4000 ft., 75 mi. from Panjgur, Baluchistan, 30 March 1955; MCZ 54430-33, Saradoo, 28 mi. S of Panjgur, Baluchistan, 27 March 1955.

*Pholidosis* (of the numbered specimens). Scales around midbody 111-153 ( $\pm 5$ ); mean, 128 (N=12). Of these, scales across the belly, 40-45. Dorsal scales subequal; there are no real enlarged nail-like scales among them, as described by Smith (1935: 229), but such scales are also not mentioned by Minton (1966: 97), who deals with Pakistanian specimens.

*Measurements.* Largest male (MCZ 54422)—Snout-vent: 49 mm. Tail: 69 mm. Largest female (MCZ 54430)—Snout-vent: 44 mm. Tail: 58 mm. Fore- and hindlimbs of males reach, adpressed, beyond the snout.

*Coloration.* The dark crossbands on the back are discernible in few specimens; apparently there are three to five. On the base of the tail there are one or two dark crossbands, behind these five or six dark annuli. These are darker, almost black, ventrally, contrasting with the cream-white

ventral ground color. The tip of the tail is whitish ventrally, grey dorsally, for a length about equal to the head length.

**Remarks.** The maximum size given here is greater than that given by Minton for specimens from West Pakistan (1966: 97—males, 44 mm snout-vent; females, 46 mm).

***Phrynocephalus* cf. *maculatus* J. Anderson**

*Phrynocephalus maculatus* J. Anderson, 1872, Proc. Zool. Soc. London, 1872: 389 (Awada, Shiraz, Persia).

**Material examined.** TRUCIAL OMAN COAST (1): MCZ 56969, Sharjah.

**Pholidosis.** The nostril is invisible from the dorsal aspect, directed upwards and forwards. Nasals separated by three series of scales. There is no lobe at the angle of the mouth. Dorsal scales homogeneous.

**Measurements.** Snout-vent, 66 mm. Tail: 90 mm. Adpressed hindlimb reaches eye.

**Coloration.** Dorsum brown, speckled yellowish, with indications of darker crossbands (?4), which are interrupted mid-dorsally. Tail with dark crossbands, every second of which is broader and better defined. Tip blackish. A photograph of a live specimen showing the same pattern is given by Minton (1966: pl. 18, fig. 3).

**Remarks.** The specimen certainly is assignable to neither *P. arabicus* nor *P. nejdensis*.

***Uromastix microlepis* Blanford**

**Plate 7**

*Uromastix microlepis* Blanford, 1874, Proc. Zool. Soc. London, 1874: 656, pl. 53 (Basra, Iraq).

**Material examined.** SAUDI ARABIA (2): MCZ 56830–31, between Al-Gaisumah and Turaif.

**Measurements** (juveniles). Snout-vent: 110 mm; 107 mm. Tail of the first: 77 mm (the second lacks the tip).

**Coloration.** Evidently juvenile coloration. Dorsum blackish brown with about six somewhat irregular yellowish crossbands; these are interrupted dorsolaterally so that each consists of one to two vertebral spots

and lateral bands. Below the eye there are three light vertical bars. Underparts a pinkish light brown, throat speckled heavily with grey-brown.

***Uromastix loricatus* Blanford**

*Centrotrachelis loricatus* Blanford, 1874, Proc. Zool. Soc. London, 1874: 660 (Bushire, Iran). *Uromastix loricatus*: Boulenger, 1885, Cat. Lizards Brit. Mus., 1: 409, pl. 32.

**Material examined.** IRAN (1): MCZ 56829, 15 mi. S of Shalgahi.

**Measurements.** Snout-vent: about 22 cm. Tail: about 16.5 cm. (The specimen is badly contorted.)

**Coloration.** Dorsum brown, with some of the tubercles yellowish. On the tail, some groups of contiguous tubercles yellowish. Ventrally, light yellowish brown; but throat, forelimbs, and femur the same brown as dorsally. Two brown crossbands in pectoral region.

**Family Lacertidae**

***Lacerta trilineata media* (Lantz and Cyrén)**

**Figure 4, A, B**

*Lacerta viridis media* Lantz and Cyrén, 1920, Bull. Soc. Zool. France, 45: 33 (Tiflis, now Tbilisi, Transcaucasia—Mertens and L. Müller, 1940). *Lacerta trilineata media*: L. Müller, 1939, Izv. tsarsk. prirodnauch. Inst. Sofia, 13: 12.

**Material examined.** IRAQ (6): MCZ 56665, ♂, 56667–71, juveniles, Havdian, at foot of Jebel Baradost near Ruwanduz.

**Pholidosis.** All specimens have four pairs of large submaxillary shields. Superciliary granules: 7–9 (11 on one side of the adult); mean, 8.3; S. D., 1.21. All specimens have two postnasals and a single anterior loreal on each side. Scales across middle of back: 48–55; mean, 51.5; S. D., 3.02. Longitudinal series of ventral plates: 6 (the enlarged series of marginals counted among the dorsals). Plates in collar: 7–11; mean, 8.8; S. D., 0.42. Gular scales in straight median series: 18–23; mean, 21; S. D., 1.90. Femoral pores: 11–14; mean, 12.7; S. D., 1.03. Subdigital lamellae (4th toe): 26–28; mean, 27.3; S. D., 0.82.



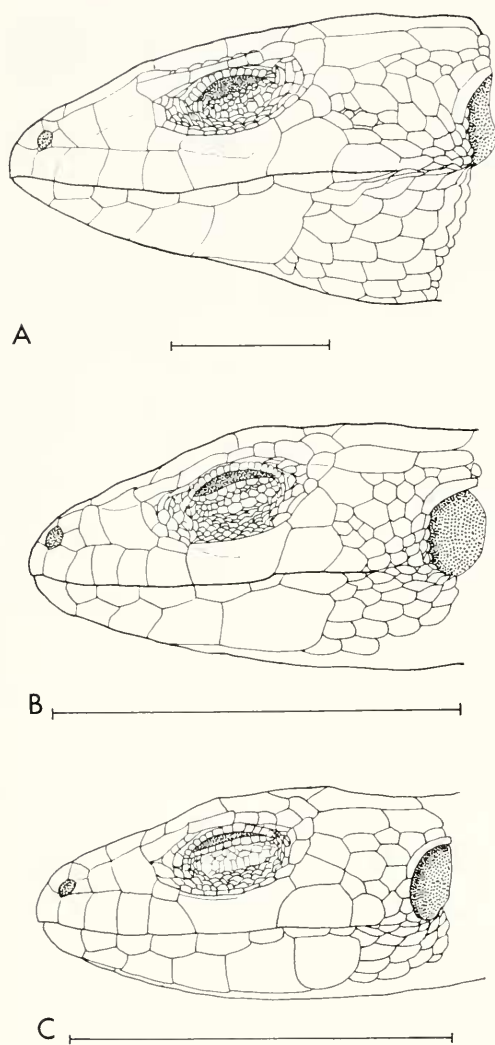


Figure 4. *Lacerta* spp. from northern Iraq. Head, lateral view, of:

- A, *L. trilineata media*, MCZ 56665, adult ♂.
- B, *L. t. media*, MCZ 56671, juvenile.
- C, *L. cf. strigata*, MCZ 56666, juvenile (?). Scale bars: 10 mm.

**Measurements.** The adult male—Snout-vent: 128 mm. Tail: 260 mm. The juveniles—Snout-vent: 36–44 mm. Tail: ( $n=2$ ): 177–190 per cent of snout-vent length.

**Coloration.** The adult male shows scarcely any distinguishable pattern. The whole head is covered with a fine blackish

reticulum of vermiform lines; the dorsal scales of the tail and the larger scales of the limbs are similarly adorned. Most ventral scales (of all parts) are a dark grey with light margins. All juveniles have a light vertebral line from occiput to pelvis; on either side there are two similar lines, and a third interrupted one. The five medial lines are sharply delimited, each about two scales broad; the lateralmost pair coincides with the marginalia.

**Remarks.** The pholidosis of our material is in perfect accord with the diagnosis given for this subspecies by G. Peters (1946a: 243). It is interesting to compare the mean values of our counts with those mapped by Peters (1964a: figs. 2–8). While most of our values are more or less the same as those found in the areas of Adana-Amanus and Armenia, or intermediate between them when these differ, the number of scales across the back is somewhat higher in Havdian. The difference in tail length between our male (203% of snout-vent length) and juveniles (177–190%) is in full agreement with the ontogenetic allometry described by Peters (1964a: fig. 10).

No *Lacerta trilineata* has apparently been recorded from Iraq so far (nor, indeed, any member of the genus *Lacerta*). The range of *L. t. media* covers, according to Mertens and Wermuth (1960: 150), northeast Asia Minor, the Caucasus, and the areas to the southeast, to Mardin (SE Anatolia). Peters (1964a: 243) gives a broader range, including part of Iran, to the neighborhood of Isfahan (Isphahan) (map, Peters, 1962: fig. 4).

#### *Lacerta cf. strigata* Eichwald Figure 4, C

*Lacerta strigata* Eichwald, 1831, Zool. Spec. Ross. Pol., 3: 189 (Krasnovodsk, North Caucasus).

**Material examined.** IRAQ (1): MCZ 56666, juvenile, Havdian, at foot of Jebel Baradost, near Ruwanduz.

**Pholidosis.** Five pairs of large submaxillary shields, the fifth slightly larger

than the second. Superciliary granules, 2/3. Nostril bordered by the rostral, first labial, one anterior and two posterior nasals. One anterior loreal. Scales across middle of back, 36. Longitudinal series of ventral plates, eight (marginalia excluded). Plates in collar, nine (the five median ones largest; outermost pair very small). Gular scales in straight median series, 14. Femoral pores, 17/?. Lamellae under 4th toe, 27.

*Measurements.* Snout-vent, 38.5 mm. Tail: 80 mm (208% of snout-vent length). Head (to rear border of ear): 11.5 mm. Foot: 12.5 mm.

*Coloration.* Dorsally, no discernible pattern. Ventrally, most scales dark with a lighter margin.

*Remarks.* This lizard was collected at the same locality as the series of *Lacerta trilineata media* reported here, but differs markedly from all specimens (juveniles) of that series in pattern and proportions, and (from the adult, as well) in pholidosis. The single, apparently juvenile, colorless specimen cannot be identified with certainty. The participation of the rostral in the nostril, the large temporal scales, the large 5th pair of submaxillary plates, and the foot, which is approximately as long (in relation to the head) as in the young *L. t. media*, all argue for relationship with *L. strigata*. However, Peters (1962: 135) does not know of any *L. strigata* with eight rows of ventral plates, and juvenile *L. strigata* always have a striped pattern. Thus our specimens appear to be related to, but not identical with, *L. strigata* Eichwald. (We may add that this specimen is certainly not similar to *Lacerta agilis brevicaudata* from Armenia, judging from its description by G. Peters [1958].) Furthermore, *L. strigata* is so far known to be sympatric with *L. t. media* only near the northeastern border of the latter's range (between Lake Urmia [Rizaiyeh] and the Caspian), while the locality of our dubious specimen (between Lake Urmia and the Tigris River) coincides with the south-

western frontier of *L. t. media* (in Iran; map, Peters, 1962: fig. 4).

### *Acanthodactylus boskianus asper* (Audouin) Plate 8, D

*Lacerta aspera* Audouin, 1829, Deser. Egypte, Rept., Suppl., p. 173, pl. 1, fig. 9 (Egypt).

*Acanthodactylus boskianus* var. *asper*: Lataste, 1885, Ann. Mus. Civ. Stor. Nat., Genova, (2) 2 (22): 496.

*Material examined.* IRAQ (1): MCZ 56642, ♂, Station K-3 near Haditha. SAUDI ARABIA (1): MCZ 56643, ♂, between Al-Gaisumah and Turaif.

*Pholidosis.* The two specimens are extremely different. In the one from Iraq the dorsal scales are rather small and feebly keeled, in the one from Saudi Arabia they are large, strongly imbricate, mucronate, and strongly keeled, the region of relatively large scales extending forwards nearly to the pectoral region. Thus, scales across middle of back for both specimens: 44; 30. Longitudinal series of ventral plates: 10; 8. (In the Arabian specimen there is a gradual transition from lateral scales to ventral plates, which makes the distinction somewhat artificial). Transverse series of ventral plates: 27. Plates in collar: 10; 9. Gular scales in a straight median series: 24; 30. Femoral pores: 23/22; 19/20. Lamellae under 4th toe: 22; 21.

*Measurements.* Iraq—Snout-vent: 59 mm. Tail: 124 mm. Saudi Arabia—Snout-vent: 94 mm. Tail: 190 mm.

*Coloration.* The Iraq specimen is typically striped, with about eight light stripes broken up into dots in their anterior parts (the lateral ones more so), and with roundish light spots on the limbs. The Arabian specimen is uniform brown, the keels forming lighter lines.

### *Acanthodactylus cantoris blanfordi* Boulenger

*Acanthodactylus cantoris blanfordi* Boulenger, 1918, Bull. Soc. Zool. France, 43: 154 (Jask, Iranian Baluchistan, and Bam, Iran).

*Material examined.* WEST PAKISTAN (2): MCZ 54438–39, Nag, 4000 ft., 75 mi. NE of Panjgur, Baluchistan.

*Pholidosis.* Scales across the middle of the back: 33; 40. Longitudinal series of ventral plates: 14; 12. Transverse series of ventral plates: 29; 30. Plates in collar: 8; 10. Gular scales in a straight median series: 31; 32. Femoral pores: 17/15; 17/?. Lamellae under 4th toe: 21/19; 23/23.

*Measurements.* Male (MCZ 54438)—Snout-vent: 60 mm. Tail: 118 mm. Female (MCZ 54439)—Snout-vent: 56 mm. Tail: 105 mm.

*Coloration.* Indications of light strips on pelvis and tail base. Back of female with rows of dark roundish spots. Hindlimb of both with round light spots, so close that only a reticulum of the dark ground color remains.

#### *Acanthodactylus micropholis* Blanford

*Acanthodactylus micropholis* Blanford, 1874, Ann. Mag. Nat. Hist., (4) 14: 33 (Magas, Baluchistan).

*Material examined.* WEST PAKISTAN (3): MCZ 54434–35, Saradoo, 28 mi. S of Panjgur, Baluchistan, 27 March 1955. MCZ 54440, Nag, 4000 ft., 75 mi. NE of Panjgur, Baluchistan, 30 March 1955.

*Pholidosis.* First supraocular broken up into one large and several tiny fragments. Scales across middle of back: 45; 39; 50. Longitudinal rows of ventral plates: 8. Transverse rows of ventral plates: 27; 29; 30. Plates in collar: 10; 10; 9. Gular scales in a straight median series: 33; 28; 31. Femoral pores: 25/26; 24/22; ?/?. Lamellae under 4th toe: 26/27; 24/23; 24/23.

*Measurements.* Largest male (MCZ 54434)—Snout-vent, 60 mm. Tail: 127 mm. Adpressed hindlimb reaches eye. A juvenile (MCZ 54440)—Snout-vent, 40 mm. Tail, 74 mm.

*Coloration.* Dorsum of the two adult males dark grey-brown with about ten indistinct, interrupted, narrow, straw-white stripes, which become more striking towards and on the broad base of the tail.

The juvenile has eight distinct light stripes from occiput to near the pelvis, where they become reduced in number. Between the two lateralmost stripes (on either side) there are indications of another, indistinct and interrupted, light line. In all specimens the limbs bear roundish light flecks, and on the sides of the head alternating light and dark vertical bars.

*Remarks.* The number of longitudinal series of ventral plates falls short of the normal figure.

#### *Acanthodactylus scutellatus hardyi* Haas

Plate 8, A–C; Plate 12, A

*Acanthodactylus scutellatus hardyi* Haas, 1957, Proc. Calif. Acad. Sci., (4) 29 (3): 72 (Bir Hinnas Station, N of Tebuk, Saudi Arabia).

*Material examined.* IRAQ (3): MCZ 56650–52, Lake Habbaniya.

*Pholidosis.* Suture between internal nasals very short, a quarter, at most, of the length of the frontonasal. Fourth supraocular broken up into granules. No enlarged anterior gulars bordering the chin shields. The whole pileus is only twice as long as broad, and in MCZ 56650 even shorter. Upper labial anterior to center of eye, 5 (but 4/5 in MCZ 56652). Scales across middle of back: about 53; 55; 53. Longitudinal series of ventral plates: 12. Transverse series of ventral plates: 27; 28; 29. Plates in collar: 9. Gular scales in a straight median series: 29; 28; 26. Femoral pores: 19/20; 19/18; 21/?. Lamellae under 4th toe: 20/22; 20/19; 22.

*Measurements.* Male (MCZ 56651)—Snout-vent: 58 mm. Female (MCZ 56652)—Snout-vent: 56 mm. Both tails broken. (MCZ 56650 is badly contorted.)

*Coloration.* Hardly discernible, very dark. Male with (or with a remnant of) blackish reticulum on back. Both with light and dark vertical bars on sides of head.

*Remarks.* This form had been described on the basis of a single specimen from north of Tebuk, northwestern Saudi Arabia. It is both gratifying and interesting to have these extremely similar specimens (meta-

types) from a locality distant more than 800 km towards the northeast. Furthermore, Boulenger's specimen from Basra (1921, 1: 107, last among "forma typica") obviously belongs also to *A. s. hardyi*. Certain scale counts of these specimens (including Boulenger's) are at about the lower limit of the range for *A. s. scutellatus* from southern Israel (N=20, personal observation): the number of scales across the middle of the back, longitudinal rows of ventral plates, plates in collar, gular scales, and lamellae under 4th toe. The number of transverse rows of ventral plates does not even overlap (with the samples at hand): *A. s. hardyi* (N=4), 27–29; *A. s. scutellatus* (N=20), 32–36. The number of femoral pores is the same in both forms.

***Acanthodactylus tristrami iracensis* Schmidt**  
Plate 9; Plate 12, B

*Acanthodactylus tristrami iracensis* Schmidt, 1939,  
Field Mus. Nat. Hist., Zool. Ser., 24 (7): 60–62.

**Material examined.** IRAQ (4): MCZ 56653–54, ♂♂, 56657–58, ♀♀, Station K-3, near Haditha on the Euphrates.

**Pholidosis.** Scales across middle of back: 47; 43; 50; 43. Longitudinal rows of ventral plates: 10. Transverse rows of ventral plates: 26; 28; 29; 27. Plates in collar: 9; 10; 10; 10. Gular scales in straight median series: 27; 25; 25; 26. Femoral pores: 21/22; 23/22; 19; 20/21. Lamellae under 4th toe: 23; 22; 23; 23.

**Measurements.** Largest male (MCZ 56653)—Snout-vent: 57 mm. Tail: 82 mm. Both females—Snout-vent: 56 mm. Tails incomplete.

**Coloration.** Ground color grey. Vermiform blackish crossbars, irregularly interrupted or confluent, contain whitish round spots, each about three scales in diameter. These white spots are arranged in up to 10 longitudinal rows. Side of head with a dark vertical bar through eye, and blackish spots in temporal area. Limbs and tail mottled grey, blackish, and white (dorsally). All underparts straw-white.

***Acanthodactylus cf. tristrami orientalis***  
Angel

*Acanthodactylus tristrami orientalis* Angel, 1936,  
Bull. Inst. Égypte, 18: 109–110 (Syria: Palmyra, Tell Abiad, Ain Zahra, Deir-ez-Zor).

**Material examined.** SYRIA (4): MCZ 56660–63, 10 mi. E of Station T-1.

**Pholidosis.** Three supraoculars, the first broken up into two units in MCZ 56663, and into four in MCZ 56662. The keeled subocular enters the mouth behind the fourth upper labial. Scales across middle of back: 47; 44; 52; 46. Longitudinal series of ventral plates: 10. Transverse series of ventral plates: 31; 30; 28; 26. Plates in collar: 10. Gular scales in a straight median series: 29; 26; 33; 26. Femoral pores: 22; 20; 23; 21. Lamellae under 4th toe: 24; 24; 23; 19. Scales covering fingers in three rows.

**Measurements** (Largest male, MCZ 56662). Snout-vent: 63 mm. Tail: 86 mm. Neck narrower than head. Adpressed hindlimb reaching between shoulder and ear.

**Coloration.** Rather dark. Discernible are light round spots, enmeshed in a coarse blackish reticulum which tends to form irregular, oblique, transverse blotches. The light spots form longitudinal rows.

**Remarks.** If these specimens belong to *A. tristrami*, they certainly represent Angel's subspecies *orientalis*. However, certain details are not in agreement with this determination: the neck is not broad enough for that stout species; the first supraocular is, on the whole, not sufficiently broken up; the pectination of the 4th toe is better developed posteriorly than anteriorly. According to Boulenger's (1921) key, these characters point to *Acanthodactylus micropholis* Blanford, which moreover, has scale counts to rather similar to those of *tristrami* (see also Minton, 1966: 108, 111), but has never been recorded west of southeastern Iran. On the other hand, the length of limbs and tail and the pattern agree better with those of *tristrami* than with those of *micropholis*, and the same is true of the arrangement of



the preanal plates. Angel's (1936) short description of *A. t. orientalis* contains no information on the dubious points raised here. Thus apparently our specimens indeed belong to the same population as Angel's, whatever their real affinities may be.

***Acanthodactylus robustus* (F.) Werner**  
Plate 10; Plate 12, C

*Acanthodactylus robustus* Werner, 1929, Zool. Anz., 81 (7-10): 240-242, fig. 2 (Syrian Desert at Bir Mohusi [Meloza], [Qaara Depression] between Damascus and Baghdad).

**Material examined.** SYRIA (3): MCZ 56645, ♀, from Qariatein to IPC Pipeline; MCZ 56648, ♀, and 56649, ♂, 20 mi. N of Station T-2.

**Pholidosis.** Three supraoculars, the first broken up into one large and a few minute fragments. Subocular separated from mouth by the 5th (or 5th and 6th) supralabials. Upper temporals, a large one succeeded by a small one. Scales across middle of back: 56; 57; 55. Longitudinal series of ventral plates: 10. Transverse series of ventral plates: 28; 29; 27. Plates in collar: 8; 9; 10. Gular scales in a straight median series: 31; 26; 27. Femoral pores: 21/20; 19/22; 27/29. Lamellae under 4th toe: 21/23; 18/19; 23/25.

**Measurements.** Male—Snout-vent: 69 mm. Tail: 49+5 mm. Larger female (MCZ 56648)—Snout-vent: 66 mm. Tail: 66 mm.

**Coloration.** MCZ 56648 resembles the photograph, evidently also a female, given by F. Werner. In the male there is a tendency for the light spots, on both back and tail, to form light crossbands. This tendency is carried further in the other female (MCZ 56645), where the tail has dorsal semi-regular crossbands.

**Remarks.** F. Werner, in his description, states that the closest relationship of *A. robustus* is with *A. grandis* (Werner, 1929: 240). As a matter of fact, *robustus* differs greatly from *grandis* in its habitus and proportions, as well as in the arrangement (not merely the number) of ventral plate

rows. The apparent relation to *grandis* follows from the use of Boulenger's key (1921), which is based on superficial characters.

***Acanthodactylus grandis* Boulenger**  
Plate 11; Plate 12, D

*Acanthodactylus grandis* Boulenger, 1909, Ann. Mag. Nat. Hist., 4 (8): 189 (Jerud and Ataiba, Syria).

**Material examined.** SYRIA (2): MCZ 56644, ♂, from Qariatein to IPC Pipeline; MCZ 56647, ♀, 3 mi. NW of Station T-2, 11 March 1950.

**Pholidosis.** Scales across middle of back: 55; 57. Longitudinal series of ventral plates: 14. Transverse series of ventral plates: 30. Plates in collar: 11. Gular scales in a straight median series: 28; 29. Femoral pores: 22; 18/16. Lamellae under 4th toe: 21/23; 21.

**Measurements.** Male—Snout-vent: 65 mm. Female—Snout-vent: 87 mm. Both tails broken.

**Coloration.** The male shows no discernible pattern, but the female has at least eight longitudinal rows of dark round spots, five to seven scales in diameter.

**Remarks.** The large female is not of maximum size (Boulenger, 1921: 115).

***Ophisops elegans* spp.**  
Tables 2, 3; Figure 5

*Ophisops elegans* Ménétériés, 1832, Cat. Rais. Obj. Zool. . . . Voy. Caucase . . . , p.63 (near Baku, Transcaucasus, U. S. S. R.).

*Ophisops elegans* varieties *typica*, *ehrenbergii*, *mizolepis*, and *persicus*, Boulenger, 1921, Monograph of the Lacertidae, Vol. 2, London, pp. 211-222.

*Ophisops elegans elegans* Lantz, 1931, Bull. Mus. Géorgie, Tiflis, 6: 34.

*Ophisops blanfordi* Schmidt, 1939, Field Mus. Nat. Hist., Zool. Ser., 24 (7): 64-65 (Halfaya, 20 mi. E of Amara, Iraq).

**Material examined.** IRAQ (52): MCZ 56672-80, 56682-91, Kish area; MCZ 56681, Afaq; MCZ 56809-28 (and 12 unnumbered specimens), probably from Kish area. IRAN (93): MCZ 56692, Mazuo; MCZ 56694-56748, Shalgahi; MCZ 56749, Mahor

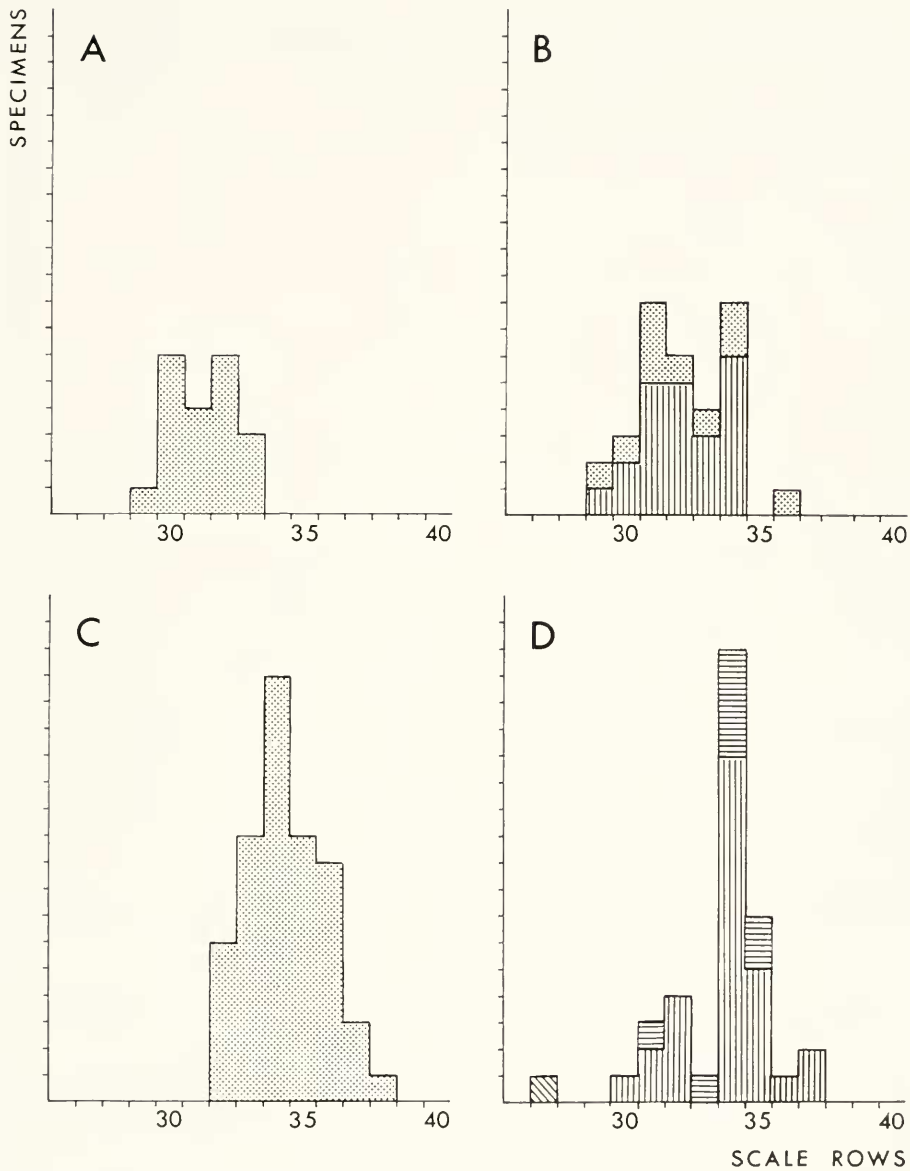


Figure 5. Variation in the number of scales around the middle of the body in population of *Ophisops elegans*. The hatching, in any direction, denotes the presence of two postnasals (on each side), whereas the stippling denotes the presence of a single postnasal (on one or both sides).

A, Iraq: Kish area and Afaq.

B, "Iraq," probably Kish area.

C, Iran: Shalgahi.

D, Iran: Dorud and Mazua—vertical hatching; Zagheh—horizontal hatching; Mahor Birinj—diagonal hatching.

TABLE 2. VARIATION IN SCALE COUNTS IN *OPHISOPS ELEGANS* SSPP.  
(N = number of specimens, O.R. = observed range, M = mean, S.D. = standard deviation.)

| Material                         |    | Scales around middle of body |      |      | Femoral pores |      |      | Lamellae under 4th toe |      |      | Post-nasals |
|----------------------------------|----|------------------------------|------|------|---------------|------|------|------------------------|------|------|-------------|
| Locality                         | N  | O.R.                         | M    | S.D. | O.R.          | M    | S.D. | O.R.                   | M    | S.D. |             |
| Iraq                             |    |                              |      |      |               |      |      |                        |      |      |             |
| Kish area                        | 19 | 29-33                        | 31.1 | 1.15 | 10-12         | 11.3 | 0.24 | 23-27                  | 25.1 | 1.29 | 1           |
| Afaq                             | 1  | 33                           |      |      | 12            |      |      | 23                     |      |      | 1           |
| “Iraq,”<br>probably<br>Kish area | 32 | 29-36                        | 32.2 | 1.72 | 9-12          | 10.9 | 0.28 | 22-27                  | 24.3 | 1.31 | 1-2         |
| Iran                             |    |                              |      |      |               |      |      |                        |      |      |             |
| Shalgahi                         | 55 | 32-38                        | 34.3 | 1.47 | 10-14         | 11.3 | 0.28 | 22-27                  | 24.8 | 1.24 | 1           |
| Mazuo                            | 1  | 32                           |      |      | 11            |      |      | 24                     |      |      | 2           |
| Mahor Birinji                    | 1  | 27                           |      |      | 10            |      |      | 23                     |      |      | 2           |
| Zagheh                           | 8  | 31-35                        | 33.8 | 1.28 | 10-13         | 11.3 | 0.30 | 23-26                  | 24.1 | 0.31 | 2           |
| Dorud                            | 28 | 30-37                        | 33.8 | 1.68 | 9-14          | 11.6 | 1.06 | 22-26                  | 23.8 | 1.09 | 2           |

Birinji; MCZ 56750-57, Zagheh; MCZ 56758-60, 56752-68, 56770-87, Dorud.

*Pholidosis.* The number of postnasals varies as follows. All specimens from the Kish area and the relatively nearby Afaq, as well as all specimens from Shalgahi in Iran, have one postnasal. All remaining specimens from Iran (Mazuo, Mahor Birinji, Zagheh, Dorud) have two postnasals (on each side), with the exception of a single specimen (MCZ 56756), which has only one very small postnasal on each side. The series marked only "Iraq," but probably from the Kish area, includes 22 speci-

mens with two postnasals, four with a single postnasal, and six that are asymmetrical in this respect. The occipital is small, or very small, in all specimens from Iraq, and also in those from Shalgahi, with the exception of one (MCZ 56734), which has a relatively large occipital and an additional interparietal. The specimens from Mazuo, Mahor Birinji, Zagheh, and Dorud have a relatively broad occipital. Pertinent meristic characters are summarized in Tables 2 and 3.

*Measurements.* Specimens from the Kish area, Afaq, and Shalgahi reach 48-50 mm

TABLE 3. VARIATION IN THE EXTENT OF THE VERTEBRAL LINE IN *OPHISOPS ELEGANS* SSPP.

| Material                   |    | Number of specimens    |                                       |          |         |        |           |
|----------------------------|----|------------------------|---------------------------------------|----------|---------|--------|-----------|
|                            |    | Without vertebral line | With a vertebral line from occiput to |          |         |        | Tail base |
| Locality                   | N  |                        | Occiput                               | Shoulder | Midbody | Pelvis |           |
| Iran                       |    |                        |                                       |          |         |        |           |
| Kish area                  | 19 | 12                     | 4                                     | 3        | 0       | 0      | 0         |
| Afaq                       | 1  | 0                      | 1                                     | 0        | 0       | 0      | 0         |
| “Iraq,” probably Kish area | 32 | 5                      | 5                                     | 11       | 7       | 4      | 0         |
| Iraq                       |    |                        |                                       |          |         |        |           |
| Shalgahi                   | 55 | 20                     | 20                                    | 14       | 1       | 0      | 0         |
| Mazuo                      | 1  | 1                      | 0                                     | 0        | 0       | 0      | 0         |
| Mahor Birinji              | 1  | 0                      | 1                                     | 0        | 0       | 0      | 0         |
| Zagheh                     | 8  | 1                      | 4                                     | 3        | 0       | 0      | 0         |
| Dorud                      | 28 | 19                     | 9                                     | 0        | 0       | 0      | 0         |

(except for one specimen of 53 mm) in snout-vent length; the remaining specimens from Iran reach 52–54 mm; in the series marked "Iraq," probably from the Kish area, the largest specimens are 47–48 mm.

**Coloration.** The degree of development of the dark vertebral line, which in Jordan facilitates distinction between *O. elegans* ssp. and *O. blanfordi* Schmidt (being well developed only in the latter [Y. L. Werner, in MS]), is very variable in the present material. In the series from most localities it is little developed, so that in most specimens it is absent or present only as a short (occipital) line, not reaching the shoulders. It is somewhat better developed in the series from Shalgahi, reaching the shoulder in several specimens. It is best developed in the series labeled "Iraq" (probably from the Kish area), even reaching the pelvis in some specimens. The details of this variation are presented in Tables 2 and 3.

**Remarks.** *Ophisops elegans* (*sensu lato*) comprises a group of forms well known for the taxonomic difficulties posed by its variation. It appears that some of the salient variable characters present their own independent geographic variation, so that the various characters formerly used to distinguish any subspecies do not necessarily coincide geographically. Thus our specimens from the Kish area (and Afaq) correspond in their single postnasal, small occipital, and number of scale rows to Boulenger's variety *mizolepis*, which was re-described by Schmidt as *Ophisops blanfordi*. But the animals from Shalgahi, also with a single postnasal and a small occipital, have higher counts of scale rows. The specimens from Mazuo, Mahor Birinji, Zagheh, and Dorud resemble Boulenger's variety *persicus* (synonymized with *O. e. elegans* by Lantz) in most respects, including the relatively broad occipital, but have a somewhat higher count of femoral pores. Of special interest are the 32 specimens that unfortunately are labeled only "Iraq," but that are probably from the Kish area, and that vary in the number of

postnasals. The high percentage of asymmetrical specimens tends to confirm that this is indeed a series of either transitory or hybrid nature (and not mixed from different localities). The remaining characters place this series between Schmidt's *O. blanfordi* and Boulenger's variety *ehrenbergi*, which was synonymized by Lantz with *O. e. elegans*. But for the element of uncertainty introduced by the absence of an exact locality, this would be a demonstration of intergradation between *O. blanfordi* and *O. elegans*, which, according to Schmidt (1939: 65), would reduce *O. blanfordi* to subspecific rank.

#### *Eremias guttulata guttulata* (Lichtenstein)

##### Table 4; Figures 6, A; 7, A

*Lacerta guttulata* Lichtenstein, 1823, Verz. Doubl. Mus. Berlin, p. 101 (Egypt).

*Eremias guttulata*: A. Smith, 1845, Ill. Zool. S. Afr., Rept., pl. 48, fig. 8.

*Eremias guttulata* forma *typica*: Boulenger, 1921, Monograph of the Lacertidae, Vol. 2, London, p. 258.

*Eremias guttulata guttulata*: Wettstein, 1928, Sitzungsber. Akad. Wiss. Wien, Math.-Naturw. Kl., Abt. 1, 137 (10): 782.

**Material examined.** IRAQ (4): MCZ 56630–32, Station K-3, near Haditha; MCZ 56633, Qaara Depression (NW of Station H-2). SAUDI ARABIA (7): MCZ 56634–39, 56641, between Al-Gaisumali and Turaif on Tapline.

**Pholidosis.** Invariably four upper labials in front of the subocular and four more behind it (the same is true of specimens from southern Israel—personal observation). In comparison with specimens of *E. g. guttulata* from Israel, all specimens have the pileus rather flattened, owing to the much reduced elevation of the eyes and, especially, the nostrils; the caudal scales are very strongly carinated. The variation of meristic characters is summarized in Table 4.

**Measurements** (largest specimen, MCZ 56635). Snout-vent: 53 mm. Almost all others are between 48 and 50 mm.

**Coloration.** All specimens have a rather



TABLE 4. VARIATION IN SCALE COUNTS IN *EREMIAS GUTTULATA* SSPP.  
(N = number of specimens, O.R. = observed range, M = mean, S.D. = standard deviation.)

| Material                | N  | Scales across middle of back |      |       | Ventral plates: number of |       |      | Plates in collar |      |       | Gular scales in straight median series |       |      | Femoral pores |      |      | Lamellae under 4th toe |      |      |
|-------------------------|----|------------------------------|------|-------|---------------------------|-------|------|------------------|------|-------|----------------------------------------|-------|------|---------------|------|------|------------------------|------|------|
|                         |    | Scales across middle of back |      |       | Transverse series         |       |      | Plates in collar |      |       | Gular scales in straight median series |       |      | Femoral pores |      |      | Lamellae under 4th toe |      |      |
|                         |    | O.R.                         | M    | S.D.  | O.R.                      | M     | S.D. | O.R.             | M    | S.D.  | O.R.                                   | M     | S.D. | O.R.          | M    | S.D. | O.R.                   | M    | S.D. |
| Iraq                    | 4  | 41-46                        | 43.0 | 10-11 | 10.3                      | 29-30 | 29.8 | 13-15            | 13.5 | 25-28 | 25.8                                   | 13-14 | 13.8 | 20-23         | 21.0 |      |                        |      |      |
| Arabia                  | 7  | 40-50                        | 43.6 | 10    | 10.0                      | 29-34 | 30.6 | 10-14            | 12.4 | 1.51  | 25-30                                  | 27.9  | 2.85 | 13-15         | 14.0 | 0.76 | 21-24                  | 22.1 | 1.21 |
| Iraq plus Arabia        | 11 | 40-50                        | 43.4 | 3.29  | 10-11                     | 10.1  | 0.30 | 10-15            | 12.8 | 1.40  | 25-30                                  | 27.1  | 2.30 | 13-15         | 13.9 | 0.68 | 20-24                  | 21.7 | 1.35 |
| Iran                    | 9  | 40-50                        | 45.4 | 3.40  | 10-12                     | 10.3  | 0.22 | 9-15             | 12.2 | 1.99  | 21-26                                  | 23.0  | 1.41 | 10-13         | 11.8 | 0.83 | 21-26                  | 23.1 | 1.62 |
| West Pakistan           | 2  | 40-42                        | 41.0 | 10    | 10.0                      | 29-31 | 30.0 | 11-12            | 11.5 |       | 23-26                                  | 24.5  |      | 10-13         | 11.8 |      | 22-23                  | 22.5 |      |
| Iran plus West Pakistan | 11 | 40-50                        | 44.6 | 3.56  | 10-12                     | 10.3  | 0.65 | 9-15             | 12.1 | 1.81  | 21-26                                  | 23.3  | 1.56 | 10-13         | 11.8 | 0.93 | 21-26                  | 23.0 | 1.49 |

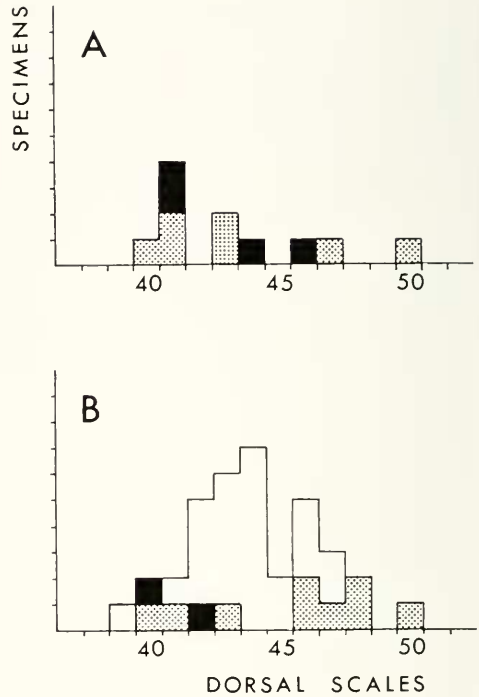


Figure 6. Variation in the number of scales across the middle of the back in subspecies of *Eremias guttulata*.

A, *E. g. guttulata*: Iraq—black; Saudi Arabia—stippled.  
B, *E. g. watsonana*: Iran—stippled; Iran—25 specimens from S. C. Anderson, 1963—white; West Pakistan—black.

indistinct pattern of ocelli, which, perhaps, is not an artifact of preservation. There is a tendency for the dark margin to be accentuated on both lateral sides of each light spot.

*Eremias guttulata watsonana* Stoliczka  
Table 4; Figures 6, B; 7, B

*Eremias (Mesalina) watsonana* Stoliczka, 1872, Proc. Asiatic Soc. Bengal, p. 86 (Sind, between Karachi and Sukkur).

*Eremias guttulata watsonana*: Smith, 1935, Fauna Brit. India, Rept. Amphib., 2: 389.

**Material examined.** IRAN (9): MCZ 56607, 56609, 56616, 56619-20, 56626-29, Mahor Birinji. WEST PAKISTAN (2): MCZ 54436, ♂, Saradoo, 28 mi. S. of Panjgur, Baluchistan, 27 March 1955; MCZ

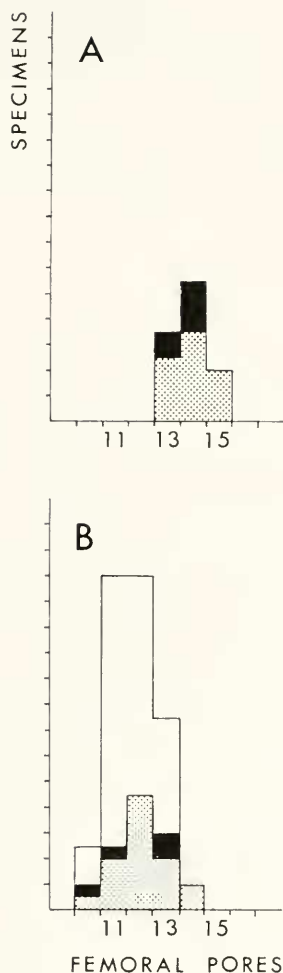


Figure 7. Variation in the number of femoral pores in subspecies of *Eremias guttulata*.

- A, *E. g. guttulata*: Iraq—black; Saudi Arabia—stippled.  
 B, *E. g. watsonana*: Iran—stippled; Iran—25 specimens from S. C. Anderson, 1963—white; West Pakistan—black.

54437, ♂, Nag, 4000 ft., 75 mi. NE of Panjgur, Baluchistan, 30 March 1955.

**Pholidosis.** In all cases, four upper labials in front of the subocular, and only three behind it. In three specimens there are two successive occipitals behind the interparietal (MCZ 56607, 56627–28). In both specimens from West Pakistan, the window in the lower eyelid is formed by two large scales (the vertical seam in be-

tween being black), beneath which are several smaller scales. In the specimens from Mahor Birinji, the scales of the window are somewhat variable. The variation of meristic characters is summarized in Table 4.

**Measurements.** Two largest specimens from Iran—Snout-vent: 57 mm, 58 mm (several others measure 54–55 mm). Two specimens from West Pakistan—Snout-vent: 45 mm, 44 mm.

**Coloration.** Quite indistinguishable.

**Remarks.** Smith (1935: 389–90) re-established the subspecies *watsonana*, in contradistinction with Boulenger (1921, 2: 258), who had united it with his forma *typica*. Our specimens are listed under *watsonana*, in spite of certain deviations, mainly on account of the very distinct and completely free collar. The same course has been generally adopted by recent authors. According to S. C. Anderson (1963: 460), “. . . *watsonana* is known from Iran, Afghanistan, West Pakistan, and northwest India”; according to Minton (1966: 110), “. . . *watsonana* occurs from Rajputana to southern Afghanistan and westward to Syria and northern Arabia, intergrading with the nominate race around the northern end of the Red Sea.” Since we have the impression that there is a gradual cline, in several respects, from east to west, such that specimens from western Iran (including those listed here), Iraq, and Jordan are more or less intermediate between the two forms, we preferred to follow the convention of regarding the more western populations as belonging to *E. g. guttulata*.

#### *Eremias olivieri* ssp.

*Lacerta olivieri* Audouin, 1829, Descr. Egypte, Rept., Suppl., p. 175, pl. 2, fig. 1 (Egypt, Sinai, or Palestine—Haas, 1951b: 275).

*Eremias olivieri*: Haas, 1951, Copeia, 1951 (4): 274–276.

**Material examined.** SAUDI ARABIA (1): MCZ 56640, between Al-Gaisumah and Turaif on Tapline.

**Pholidosis.** Scales across the middle of the back, 40. Longitudinal series of ventral

plates, 10. Transverse series of ventral plates, 31. Plates in collar, 12. Gular scales in straight median series, 30. Femoral pores, 13/14. Lamellae under 4th toe, 21. On one side, four upper labials preceding the subocular (which enters the mouth), on the other, five. On either side, four upper labials behind the subocular. Scales under the basal portion of the tail (the distal portion is missing) convex or bluntly keeled.

*Measurements.* Snout-vent: 44 mm.

*Coloration.* A distinct impression of a longitudinal striping is created by a pair of dorsolateral longitudinal rows of light spots (each about 4 scales in diameter), each of which is bordered along its medial side by a blackish longitudinal line, about five scales long (and 1 broad). On either side of this pair of bicolored interrupted bands are small scattered ocelli, and less distinct ocelli are in evidence dorsally, between the two bands. Along each flank runs a light band (starting at the subocular), two to three scales broad, and one scale removed from the lateral series of ventral plates.

*Remarks.* Haas (1951b) discussed the independent status of *Eremias olivieri* and defined it as a species. It is not possible to determine our single specimen at the subspecific level. That this specimen was collected in the same general locality as the series of *E. guttulata guttulata* shows that apparently in northwestern Arabia, as in certain areas of southern Israel, the two may be sympatric (Haas, 1951b). *E. olivieri* has been collected in Jordan (Haas, 1951a), but apparently has not so far been identified from Iraq (Khalaf, 1959) or Arabia.

*Eremias brevirostris brevirostris* (Blanford)

Table 4; Figures 8–12; Plates 13–15, Plate 18, C–F

*Mesaliina brevirostris* Blanford, 1874, Ann. Mag. Nat. Hist., (4) 14: 32 (Kalabagh, Punjab, and Tumb Island, Persian Gulf—restricted to Kalabagh by Schmidt, 1939: 66).

*Eremias brevirostris*: Boulenger, 1887, Cat. Lizards Brit. Mus., 3: 87.

*Eremias brevirostris* forma *typica*: Angel, 1936, Bull. Inst. Egypte, 18: 111–112.

*Material examined.* SYRIA (3): MCZ 56586, from Qariatein to IPC Pipeline; MCZ 56586, Wadi Sukhura near Jebel Abdul Aziz; MCZ 56587, 20 mi. N of Station T-2. IRAQ (13): MCZ 56588–92, Lake Habbaniya; MCZ 56593, Afaq; MCZ 56621–23, Qaara Depression N of Rutba. SAUDI ARABIA (20): MCZ 56565–84, between Al-Gaisumah and Turaif on Tapline. BAHRAIN ISLAND: MCZ 54441, 6 mi. S of Zallaq, 21 March 1955. WEST PAKISTAN: MCZ 54442, Pasni, Baluchistan.

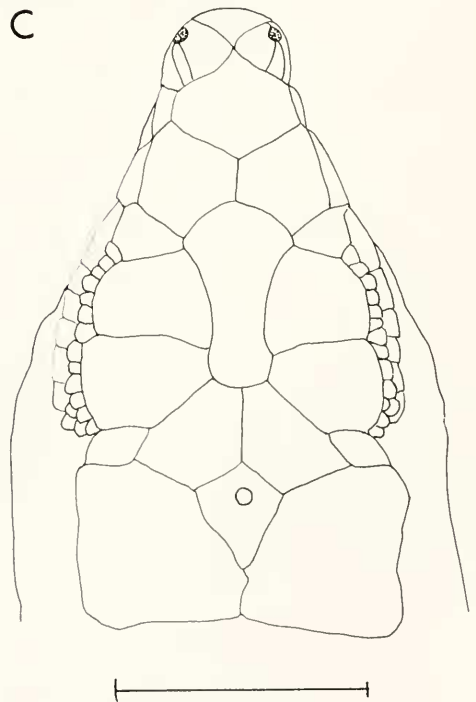
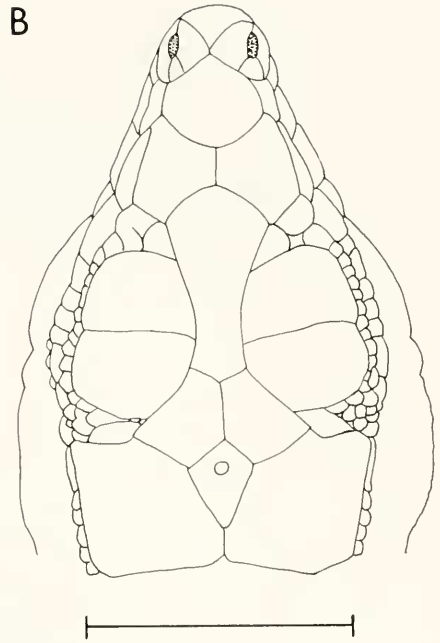
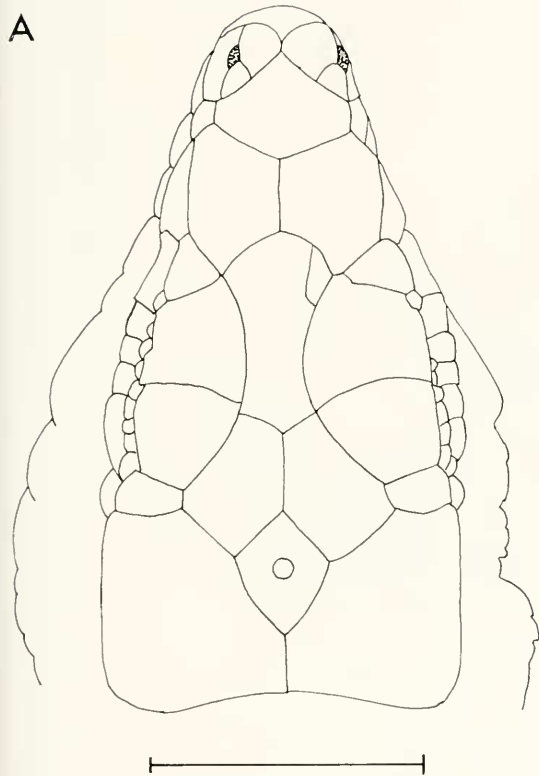
*Pholidosis.* The arrangement of the upper labials and their relation to the subocular varies as follows. *Syria*: the subocular enters the mouth in one case (MCZ 56586—behind the 4th labial on the left side, behind the 3rd on the right); in two cases it is separated from the mouth (MCZ 56585—by the 5th labial; MCZ 56587—by the small 5th and 6th labials). *Iraq*: the subocular enters the mouth in only three cases (MCZ 56592–93, 56622)—always behind the 4th labial; it is separated from the mouth in nine cases—in seven of these by the 5th labial (MCZ 56588–89, 56621, 56623–25, 56655); in one case asymmetrically by the 5/6th labial (MCZ 56591); in one case symmetrically by the small 6th and 7th labials (MCZ 56590). One specimen (MCZ 56656) is asymmetrical in that the subocular enters the

Figure 8. *Eremias brevirostris* spp. Head, dorsal view, of:

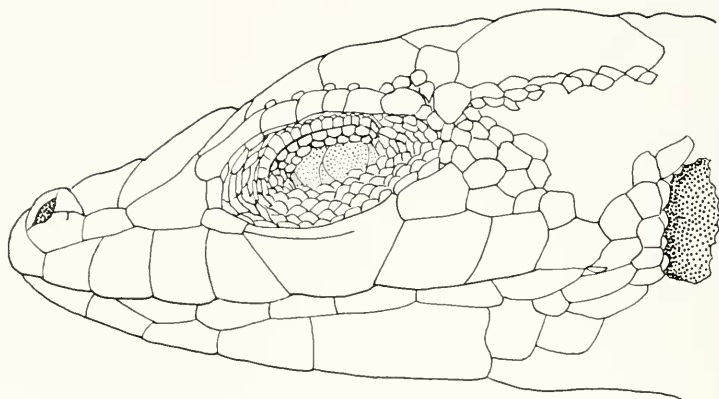
A, *E. b. fieldi* subsp. nov., MCZ 56617, ♂, type, from Iran (Mahor Birinji).

B, *E. b. cf. brevirostris*, MCZ 56570, from Arabia (between Al-Gaisumah and Turaif).

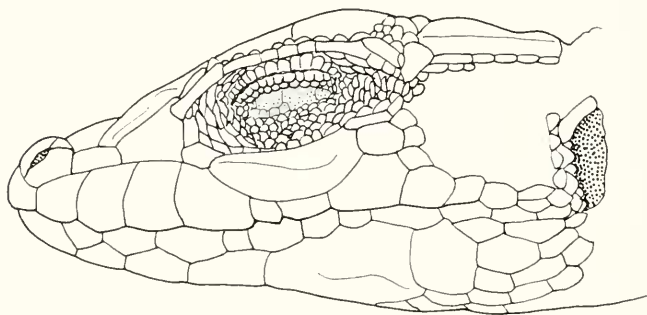
C, *E. b. cf. microlepis*, HUJ-R 6183, from Jordan (Amman—Chissal). Scale bars: 5 mm.



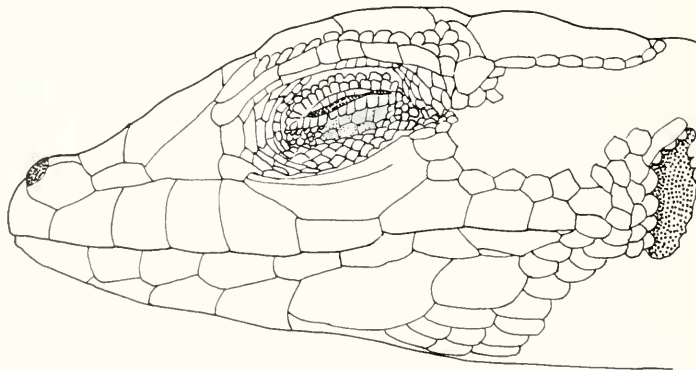




A



B



C

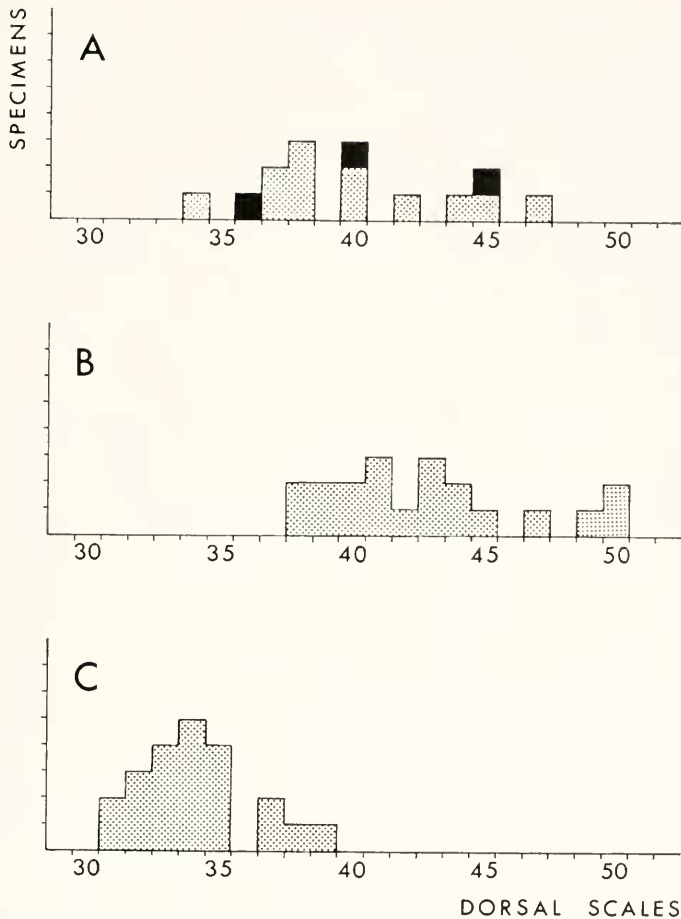


Figure 10. Variation in the number of scales across the middle of the back in subspecies of *Eremias brevirostris*.

A, *E. b. brevirostris*: Syria—black; Iraq—stippled.

B, *E. b. cf. brevirostris* from Arabia.

C, *E. b. fieldi* subspec. nov. from Iran (Mahor Birinji and Gotwand).

mouth on the left side (behind the 5th labial), but not on the right, where it is separated from the mouth by the 5th labial (MCZ 56656).

**Measurements.** Snout-vent lengths of the largest specimens from the various localities are as follows. *Syria*: 50 mm (MCZ

56586). *Iraq*: Lake Habbaniya, 60 mm (MCZ 56592); Afaq, 53 mm (MCZ 56593); all five specimens from Station K-3 near Haditha: 50–52 mm; Qaara Depression, 48 mm (MCZ 56624). *Saudi Arabia*: 48 mm (MCZ 56572). *West Pakistan*: both 40–42 mm (contorted). (For comparison,

Figure 9. *Eremias brevirostris* spp. Head, lateral aspect, of:

A, *E. b. fieldi* subspec. nov., MCZ 56610, ♂, paratype, from Iran (Mahor Birinji).

B, *E. b. cf. brevirostris*, MCZ 56570, from Arabia (between Al-Gaisumah and Turaif).

C, *E. b. cf. microlepis*, HUJ-R 6183, from Jordan (Amman—Chissa). Scale bars: 10 mm.

the largest of the types listed by Boulenger [1921] from Kalabagh was 44 mm; on the other hand, specimens from Transjordan [Jordan] reach 57 mm [HUJ-R 1229].)

*Coloration.* In most of the specimens the pattern is not well preserved. Nevertheless it is evident that the basic pattern of ocelli is very variable. Thus in MCZ 56656 there are four regular longitudinal rows of ocelli, each with a light center about three scales wide, and a dark margin two to three scales broad. The margin of each light spot is particularly well developed cranially and caudally, so that there is a tendency for the formation of longitudinal dark chains. In other specimens (e.g., MCZ 56592) the light spots are not so regularly disposed, and the black margin is better developed on both lateral sides of each light spot. The two specimens from West Pakistan are rather light colored, with only a pair of delicate dark dots flanking each white spot on its lateral sides.

*Remarks.* *Eremias brevirostris* ranges from Syria to northwestern India. Considerable geographic variation is evident in our material (Table 5). There seem to be sufficient grounds for considering our material from Iran as a distinct subspecies (see *Eremias brevirostris fieldi* subsp. nov.). Specimens from Arabia probably also represent a distinct population, characterized by, among other things, a very pointed snout and a tendency for a higher number of upper labials. However, our series is too variable for the formal definition of a distinct subspecies.

Blanford's types were from Kalabagh (Punjab) and Tumb Island (Persian Gulf); Schmidt (1939: 66) restricted the type locality to Kalabagh. Counts of Blanford's four types, from Boulenger (1921), are appended to our Table 5, for comparison. Our specimens from West Pakistan, both in bad condition, resemble Boulenger's (1921) specimen from Dasht (Baluchistan). Counts of all three accord fairly well with those of the types. In our Pakistan specimens the snout is pointed, the

nostril not swollen, the naris a horizontal slit between the two larger nasals (out of three) and hardly visible.

The specimens from Iraq are not distinguishable on the basis of scale counts from the typical population of the Punjab and West Pakistan; unless geographical discontinuity be proved, they may be regarded as belonging to the typical subspecies. Head shape in the Iraq specimens, however, varies considerably. In the single specimen from Afaq the head is flat, the nostrils very moderately elevated. In specimens from Lake Habbaniya the head is blunt and wedge-shaped, with swollen nostrils. The head is higher than in specimens from Jordan (in the Hebrew University collection); its plates are smooth, not rugose as in those from Jordan. Specimens from the Qaara Depression (north of Rutba in western Iraq) resemble those from Jordan, but are smaller (see measurements).

The three specimens from eastern Syria, like those from Iraq, appear assignable to *E. b. brevirostris*. Angel (1936), too, while describing *E. b. microlepis* from Haouarine (between Homs and Qariatein), assigned Syrian specimens from Palmyra and northwards to the typical form.

*Eremias brevirostris fieldi* subsp. nov.

Table 5; Figures 8-12; Plates 16, 17, Plate 18, A, B

*Holotype.* MCZ 56617, ♂, Mahor Birinji, southwestern Iran.

*Paratypes* (21). MCZ 56605, 56606, 56608, 56610-15, 56618, from the type locality. MCZ 56594-56604, from 4 mi. W of Gotwand, Iran.

*Diagnosis.* Differs from *Eremias brevirostris brevirostris* (Blanford) 1874 in its larger scales, the ventrals excepted. Scales across middle of back: 30-39 (usually 33-35). Gular scales in a straight median series: 20-25. Lamellae under 4th toe: 16-20. Femoral pores: mode 12, but up to 15 (see Table 5).

*Description of holotype.* A male. Head

TABLE 5. VARIATION IN SCALE COUNTS IN *EREMIAS BREVIROSTRIS* SSPP.

(N = number of specimens, O.R. = observed range, M = mean, S.D. = standard deviation.)

| Material            | N  | Scales across middle of back |      |      |       | Ventral plates; number of |      |       |      |                  |       |      |      | Plates in collar                       |      |      |       |               |      | Gular scales in straight median series |      |                        |   | Femoral pores |  |      |   | Lamellae under 4th toe |  |  |  |
|---------------------|----|------------------------------|------|------|-------|---------------------------|------|-------|------|------------------|-------|------|------|----------------------------------------|------|------|-------|---------------|------|----------------------------------------|------|------------------------|---|---------------|--|------|---|------------------------|--|--|--|
|                     |    | Longitudinal series          |      |      |       | Transverse series         |      |       |      | Plates in collar |       |      |      | Gular scales in straight median series |      |      |       | Femoral pores |      |                                        |      | Lamellae under 4th toe |   |               |  |      |   |                        |  |  |  |
|                     |    | O.R.                         | M    | S.D. |       | O.R.                      | M    | S.D.  |      | O.R.             | M     | S.D. |      | O.R.                                   | M    | S.D. |       | O.R.          | M    | S.D.                                   |      | O.R.                   | M | S.D.          |  | O.R. | M | S.D.                   |  |  |  |
| Syria               | 3  | 36-45                        | 40.3 |      | 12    | 12                        |      | 32-34 | 33   |                  | 9-11  | 10   |      | 24-27                                  | 25.3 |      | 14-17 | 15.5          |      | 20-23                                  | 21   |                        |   |               |  |      |   |                        |  |  |  |
| Station             |    |                              |      |      |       |                           |      |       |      |                  |       |      |      |                                        |      |      |       |               |      |                                        |      |                        |   |               |  |      |   |                        |  |  |  |
| K-3                 | 5  | 34-47                        | 40.2 |      | 12    | 12                        |      | 29-34 | 31.2 |                  | 10-12 | 11.2 |      | 23-27                                  | 25.4 |      | 15-19 | 16.5          |      | 21-23                                  | 21.8 |                        |   |               |  |      |   |                        |  |  |  |
| Qaara               | 2  | 42-45                        | 43.5 |      | 12    | 12                        |      | 29-30 | 29.5 |                  | 11-12 | 11.5 |      | 23                                     | 23   |      | 13-14 | 13.5          |      | 23                                     | 23   |                        |   |               |  |      |   |                        |  |  |  |
| Syria, K-3, plus    |    |                              |      |      |       |                           |      |       |      |                  |       |      |      |                                        |      |      |       |               |      |                                        |      |                        |   |               |  |      |   |                        |  |  |  |
| Qaara               | 10 | 34-47                        | 40.9 | 4.38 | 12    | 12                        | 0    | 29-34 | 31.4 | 1.9              | 9-12  | 10.9 | 0.31 | 23-27                                  | 24.9 | 1.59 | 13-19 | 15.6          | 1.76 | 20-23                                  | 21.8 | 1.23                   |   |               |  |      |   |                        |  |  |  |
| Habbaniya           | 5  | 37-40                        | 38.6 |      | 12    | 12                        |      | 30-36 | 33   |                  | 9-11  | 9.8  |      | 21-27                                  | 24.6 |      | 13-15 | 13.8          |      | 19-23                                  | 20.6 |                        |   |               |  |      |   |                        |  |  |  |
| Afaq                | 1  | 38                           |      |      | 12    | 12                        |      | 33    |      |                  | 8     |      |      | 26                                     |      |      | 16    |               | 22   |                                        |      |                        |   |               |  |      |   |                        |  |  |  |
| Habbaniya plus Afaq | 6  | 37-40                        | 38.5 | 1.22 | 12    | 12                        |      | 30-36 | 33   | 2                | 8-11  | 9.5  | 1.05 | 21-27                                  | 24.8 | 2.40 | 13-19 | 14.2          | 1.17 | 19-23                                  | 20.8 | 1.72                   |   |               |  |      |   |                        |  |  |  |
| Arabia              | 20 | 38-50                        | 42.9 | 3.76 | 10-12 | 11.5                      | 0.76 | 30-35 | 32.6 | 1.03             | 6-13  | 8.6  | 1.73 | 22-30                                  | 26.1 | 2.12 | 12-16 | 13.5          | 1.14 | 21-28                                  | 23.3 | 1.97                   |   |               |  |      |   |                        |  |  |  |
| Gotwand             | 11 | 31-38                        | 33.8 | 2.5  | 10-12 | 11.8                      | 0.6  | 28-35 | 31.5 | 2.07             | 8-12  | 9.9  | 1.04 | 20-25                                  | 22.4 | 1.57 | 12-15 | 13.0          | 0.96 | 16-20                                  | 18.0 | 1.18                   |   |               |  |      |   |                        |  |  |  |
| Mahor               |    |                              |      |      |       |                           |      |       |      |                  |       |      |      |                                        |      |      |       |               |      |                                        |      |                        |   |               |  |      |   |                        |  |  |  |
| Birinj              | 11 | 32-39                        | 34.5 | 2.08 | 10-12 | 11.8                      | 0.6  | 30-35 | 32.8 | 1.86             | 8-12  | 10.2 | 1.17 | 20-24                                  | 22.0 | 1.48 | 12-14 | 12.7          | 0.72 | 16-18                                  | 17.5 | 0.69                   |   |               |  |      |   |                        |  |  |  |
| Iran                | 22 | 31-39                        | 34.1 | 2.14 | 10-12 | 11.8                      | 0.59 | 28-35 | 32.2 | 2.06             | 8-12  | 10   | 1.09 | 20-25                                  | 22.2 | 1.50 | 12-15 | 12.9          | 0.85 | 16-20                                  | 17.8 | 0.53                   |   |               |  |      |   |                        |  |  |  |
| West                |    |                              |      |      |       |                           |      |       |      |                  |       |      |      |                                        |      |      |       |               |      |                                        |      |                        |   |               |  |      |   |                        |  |  |  |
| Pakistan            | 2  | 42                           | 42   |      | 10-12 | 11                        |      | 29-30 | 29.5 |                  | 10    | 10   |      | 28-29                                  | 28.5 |      | 12-16 | 14.0          |      | 22-23                                  | 22.5 |                        |   |               |  |      |   |                        |  |  |  |
| TYPES               | 4  | 45-47                        | 46   |      | 12    | 12                        |      | 30-33 | 31.8 |                  | 8-9   | 8.8  |      | 25-28                                  | 26.0 |      | 14-16 | 14.9          |      | 20-24                                  | 21.8 |                        |   |               |  |      |   |                        |  |  |  |



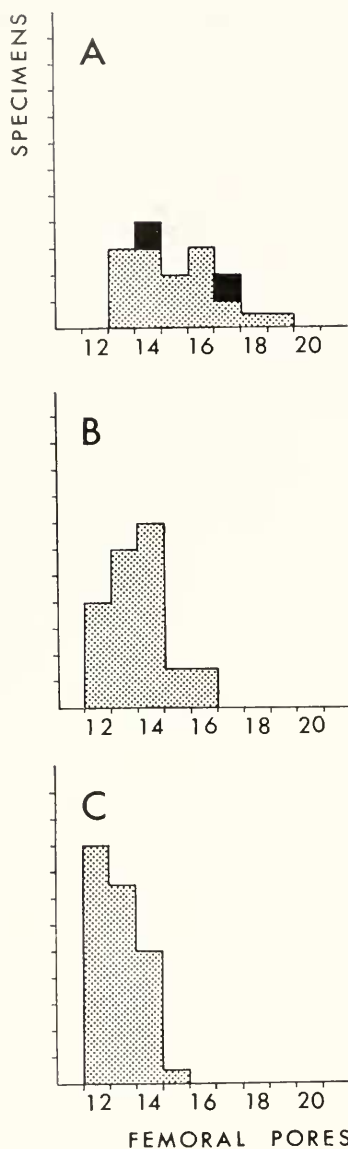


Figure 11. Variation in the number of femoral pores in subspecies of *Eremias brevirostris*.

A, *E. b. brevirostris*: Syria—black; Iraq—stippled.

B, *E. b. cf. brevirostris* from Arabia.

C, *E. b. fieldi* subspec. nov. from Iran (Mahor Birinji and Gotwand).

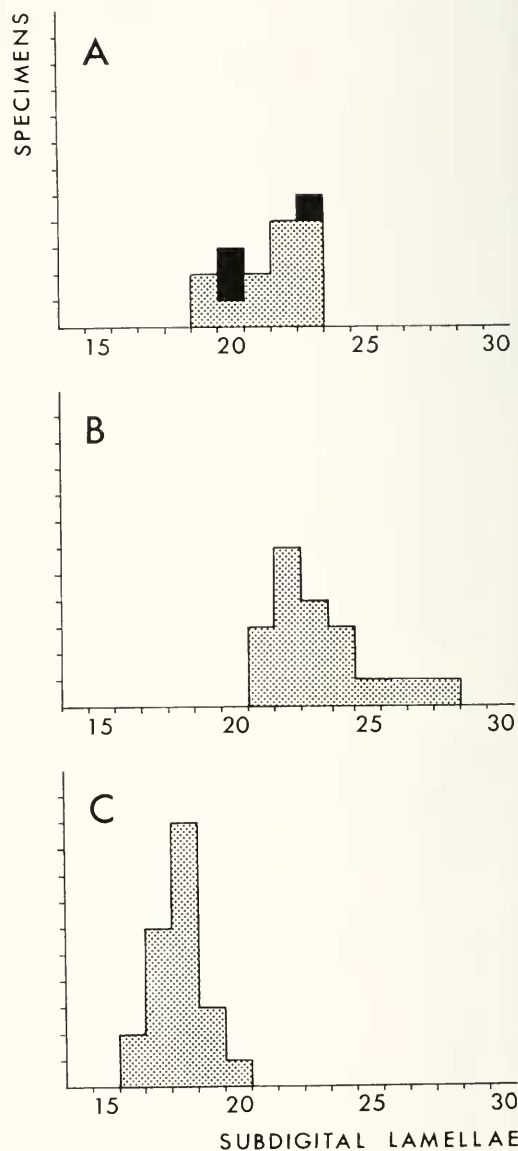


Figure 12. Variation in the number of subdigital lamellae in subspecies of *Eremias brevirostris*.

A, *E. b. brevirostris*: Syria—black; Iraq—stippled.

B, *E. b. cf. brevirostris* from Arabia.

C, *E. b. fieldi* subspec. nov. from Iran (Mahor Birinji and Gotwand).

(to rear border of ear) slightly more than one and one half times as long as broad. Nostril not swollen; the opening elongated, nearly twice as long as broad. All upper

head shields strongly convex; rugose. Parietals in good sagittal contact behind the interparietal, the line of contact two-fifths of the length of the parietals. No occipital.

Four supraoculars, the second the largest. Subocular longitudinally keeled, entering the mouth as broadly as the 4th upper labial, which precedes it. Behind the subocular two enlarged labials, each about the size of the 4th. Temporal scales roundish, convex, relatively large: only six in a vertical line from pileus to supralabials, half way between eye and ear; only three between pileus and tympanic shield. Lower labials: 6, the last considerably elongate. Chin shields: 5/6, the first 2/3 in contact sagittally. Gular scales in a straight median series: 22. Plates in collar: 9. Thirty-two scales across the middle of the back. Ventral plates in 12 longitudinal series and in 32 transverse series. Femoral pores: 12/13. Lamellae under 4th toe: 19/18. Upper caudal scales (end of original portion) feebly keeled, lower smooth. Tail base very strongly swollen, so that it is as broad as the body just before the pelvis. The swollen region is nearly as long as the trunk between the limbs (interlimb length). Most of the swollen part is covered by the regular large caudal scales, only its anterior third by the smaller scales typical of the base of the tail.

#### MEASUREMENTS OF HOLOTYPE

|                                          | MM          |
|------------------------------------------|-------------|
| Snout-vent . . . .                       | 58.0        |
| From snout to forelimb                   | 22.0        |
| Head length (to posterior border of ear) | 13.5        |
| Head width . . . .                       | 9.0         |
| Head depth . . . .                       | 7.0         |
| Forelimb . . . .                         | 16.5        |
| Hindlimb . . . .                         | 26.0        |
| Tail . . . . .                           | 22.0 + 45.0 |

*Coloration of holotype.* Very dark, pattern difficult to distinguish. There are indications of ocellus-like spots, the light center about three scales in diameter, the darker rim one to two scales broad. At least some of these ocelli are confluent with their neighbors, forming dark crossbands.

*Variation of the type series.* In the speci-

mens from Gotwand the nostril may be slightly swollen, and the opening is usually less elongated than in those from Mahor Birinji. The occipital, usually absent, may be represented by one or two minute granules. The first supraocular is rarely divided in two. In one specimen there are only three upper labials in front of the subocular, on one side (MCZ 56613). The number of temporal scales between pileus and upper labials may be six or seven, between pileus and tympanic shield, three or four.

In specimens with complete tails, the part behind the basal swelling has keeled scales dorsally, smooth ones ventrally. Data for the meristic characters are given in Table 5.

Some of the specimens show the pattern described for the holotype somewhat more distinctly. The light spots are arranged in semi-regular longitudinal series. The degree of confluency among their black frames is very variable. On the tail, the pattern gradually changes to one of alternating light and dark half-rings. There seems to be no distinctive pattern on the side of the head; it is either unicolor or somewhat mottled.

*Remarks.* It is interesting to note that this relatively large-scaled local subspecies occurs in the eastern part of the range of the species, while at the western margin of the range there occurs the small-scaled *E. b. microlepis* Angel (western Syria and northern Jordan—Y. L. Werner, in MS).

#### Family Scincidae

##### *Eumeces zarudnyi* Nikolski

*Eumeces zarudnyi* Nikolski, 1899, Ann. Zool. Mus. Acad. Sci. St. Petersburg, 4: 399 (Seistan and Kirman in eastern Persia).

*Eumeces zarudnyi* Nikolski, 1899, Yearb. Zool. Mus. Acad. Sci. St. Petersburg, 4: 400.

*Material examined.* WEST PAKISTAN (2): MCZ 54443, ♂, Shahi-Tump at Turbat, Baluchistan, 21 March 1955, Chughtai; MCZ 54444, ♂, Saradoo, 28 mi. S of Panjgur, Baluchistan, 27 March 1955, H. Field.

*Pholidosis*. Both specimens have 28 scale rows (as also mentioned by Taylor for a specimen from Baluchistan), the two mid-dorsal ones being the broadest. The heel plates are distinct in MCZ 5444, smaller in 5443.

*Measurements* (Largest, MCZ 5444). Snout-vent: 117 mm.

#### *Mabuya aurata septemtaeniata* Reuss

*Euprepis septemtaeniatus* Reuss, 1834, Mus. Senckenb., 1: 47, pl. 3, fig. 1 (Massawa [Massaua]).

*Mabuya aurata septemtaeniata*: Mertens, 1924, Abh. Ber. Mus. Nat.-Heimatk. (Naturk. Vorgesch.) Magdeburg, 3: 377.

*Material examined*. IRAQ (11): MCZ 56539-43, 56546, 56548, 56549, Kish area; MCZ 56559-60, Station K-3, near Haditha on the Euphrates. IRAN (8): MCZ 56551-58, Mahor Birinji.

*Pholidosis*. Only in two specimens do the parietals meet behind the interparietals. Scale rows: in the specimens from Iraq, 37 in six specimens, 36 in three, 35 in one, and 34 in one; in the specimens from Iran, 34 in four specimens, 35 in two, 36 in one, and 37 in one.

*Measurements*. Largest (and apparently fully grown) specimens from Iraq—Snout-vent: 70-81 mm. Largest specimens from Iran—Snout-vent: 76-84 mm.

*Coloration*. A pair of broad, brown, lateral bands. Between these, four narrow, blackish, interrupted dorsal stripes.

#### *Mabuya macularia* Blyth

*Euprepes sebae* Duméril and Bibron (in part), 1839, Erpétol. Gén., 5: 692.

*Mabuya macularia*, Boulenger, 1887, Cat. Lizards Brit. Mus., 3: 182.

*Material examined*. WEST PAKISTAN (1): MCZ 54446, Tatta, Sind.

*Pholidosis*. Twenty-eight scale rows, dorsals with seven keels. Sixteen lamellae under 4th toe. The specimen differs from the description by Boulenger (1887) in having the frontal clearly longer than the combined lengths of frontoparietal and

interparietal, and in having a fifth small (doubtful) supraocular. It is hard to assign the single preserved specimen to one of the five forms distinguished by Smith (1935).

*Measurements*. Snout-vent: 61 mm.

#### *Mabuya vittata* Olivier

*Scincus vittatus* Olivier, 1804, Voy. Emp. Othoman, 3: 103 (sands of Rosetta).

*Mabuya vittata*: Wettstein, 1928, Sitzungsber. Akad. Wiss. Wien, Math.-Naturw. Kl., Abt. 1, 137 (10): 783.

*Material examined*. IRAQ (6): MCZ 56538, 56544, 56547, Kish area; MCZ 56561-63, Havdian, at foot of Jebel Baradost near Ruwanduz.

*Pholidosis*. Thirty-one scale rows in three specimens, 32 in two, and 30 in one. MCZ 56563 shows an especially sharp treble keeling of the dorsal scales.

*Measurements*. Kish area—Snout-vent: 60-68 mm. Havdian—Snout-vent: 80-87 mm.

*Coloration*. All six specimens have two broad, dark brown, dorsal stripes and a lateral pair of broad dark stripes. In specimens from the Kish area, the middorsal light-colored (greyish) band is approximately twice as wide as each lateral light-colored band. The dark bands are framed in black, especially towards the middorsal light band, and at the lateral (lower) margin of the lateral dark pair. In specimens from Havdian, the dorsal pair of dark bands lacks the medial black seam, showing instead a dark mottled pattern which may or may not be emphasized towards the middorsal light band. Irregular mottling occurs also on the lateral dark stripes.

#### *Ophiomorus tridactylus* Blyth

*Sphenocephalus tridactylus* Blyth, 1855, J. Asiat. Soc. Bengal, 22: 654 (Afghanistan).

*Ophiomorus tridactylus*: Boulenger, 1887, Cat. Lizards Brit. Mus., 3: 394.

*Material examined*. WEST PAKISTAN (1): MCZ 54445, Saradoo.

*Pholidosis*. Twenty-two scale rows.

*Measurements*. Snout-vent: 91 mm.

***Scincus conirostris* Blanford**

*Scincus conirostris* Blanford, 1881, Proc. Zool. Soc. London, 1881: 677, fig. 1 (Tangyak, 7 mi. S of Bushire).

*Material examined.* SAUDI ARABIA (1): MCZ 56564, between Al-Gaisumah and Turaif on Tapline.

*Pholidosis.* Twenty-six scale rows. Pre-frontal well separated from rostral by sagittally contiguous supranasals.

*Measurements.* Snout-vent: 59 mm.

*Coloration.* Uniformly colored, without transverse bars (young *S. officinalis* of equal size are similarly colored; the bars develop later in life).

*Remarks.* This form is considered a subspecies of *S. scincus* by Khalaf (1959: 49), who does not state his reasons.

***Chalcides ocellatus ocellatus* Forskål**

*Lacerta ocellata* Forskål, 1775, Descr. Anim., p. 13 (Egypt).

*Chalcides ocellatus* forma *typica*, Boulenger, 1890, Ann. Mag. Nat. Hist., 51: 444.

*Material examined.* TRUCIAL OMAN COAST (3): MCZ 56534-36, Sharjah.

*Pholidosis.* All three specimens have 28 scale rows at midbody.

*Measurements.* Snout-vent: 97, 73, and 90 mm.

*Coloration.* These specimens seem to be much darker than animals from Israel. Each of the upper and lower labials, beginning with the second, has a broad black rim on its dorsal, ventral, and caudal borders, so that the lips bear a kind of zebra striping. In some regions, especially on the sides of the neck, the black mottling dominates over the paler interstices. In each of the numerous dorsal ocelli, the white center is reduced to a narrow streak (narrower than in specimens from Israel, in general). The dorsal ocelli tend to become confluent laterally (especially so in MCZ 56536: the crossbar-like fusions are irregular on its back and flanks, but very regular in the dorsopectoral area). On the tail (behind its base) the ocellated scales

form regular transverse bands, each two separated by a double ring of pale scales.

**ORDER AMPHISBAENIA****Family Trogonophidae*****Diplometopon zarudnyi* Nikolski**

*Diplometopon zarudnyi* Nikolski, 1907, Ann. Zool. Mus. Acad. Sci. St. Petersburg, 10: 277 (Nasrie, Arabistan, Iran).

*Material examined.* SAUDI ARABIA (2): MCZ 56537, 57176, along Trans-Arabian Pipeline (Tapline) between Al-Gaisumah and Turaif.

*Pholidosis.* The postfrontal (Gans, 1960: 139; = frontal, Haas, 1957: 72) is almost completely bisected by the median groove in MCZ 56537, but not in MCZ 57176, in which the groove divides only the posterior two thirds of that shield. Of the two preoculars (?) the lower (loreal?) is much more elongated, and the upper consequently much larger, than in the specimens depicted by Haas (1957: 71, fig. 8) and Gans (1960: 140, fig. 3). Body annuli (Gans, 1961: 6) of MCZ 56537 (the other specimen being badly damaged), 178; postanal annuli, 20; anals, 8.

*Measurements* (MCZ 56537). Snout-vent: 149 mm. Tail: 14 mm. (The specimen is strongly contorted.)

*Coloration.* A pinkish brown, speckled dorsally with blackish brown dots; similar to specimen depicted by Gans (1960: 45, fig. 3), but the dark dots extend on the tail to the penultimate annulus.

**ORDER OPHIDIA****Family Typhlopidae*****Typhlops* cf. *vermicularis* Merrem**

*Typhlops vermicularis* Merrem, 1820, Tent. Syst. Amphib., p. 158 (Greek Islands—Mertens and Müller, 1928).

*Material examined.* IRAN (1): HF-30, Mazuo.

*Measurements.* Total length, about 200 mm.



**Family Boidae*****Eryx jaculus* spp.**

*Anguis jaculus* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 228 (Egypt).

*Eryx jaculus*, Daudin, 1803, Hist. Nat. Rept., 7: 257.

**Material examined.** IRAQ (7): MCZ 56870-71, Lake Habbaniya; MCZ 56872-75, Kish area; MCZ 58874, Abu Ghraib, W of Baghdad. IRAN (1): MCZ 56876, Mahor Birinj.

**Pholidosis.** Interorbital scales (from eye to eye): 5-6 (mean, 5.6). Scales surrounding eye: 8-11 (mean, 9.6). Upper labials: 9-11 (mean, 9.8). Scale rows: 41-52 (mean, 48.3). Ventrals: 180-194 (mean, 187.7). Subcaudals: 22-32 (mean, 27.6). Regarding the last three characters, the specimen from Iran represents the short-tailed extreme of the variation: ventrals, 192; subcaudals, 22 (it has 51 scale rows).

**Measurements.** The snakes are rather contorted and difficult to measure accurately. The largest (MCZ 56871 from Lake Habbaniya) measures at least 480 mm snout-vent, 49 mm tail. The specimen from Iran (MCZ 56876) also measures 480 mm snout-vent; its tail is 46 mm.

**Coloration.** All specimens from Iraq have brown backs, with light, irregular blotches, some confluent to form an irregular zig-zag band, some more like cross-bands. The brown margins of the light areas are spotted here and there with darker brown. Flanks are also spotted with the darker brown. In the specimen from Iran the back is best described as being of a light (cream) color, with a median series of very irregular brown blotches, some anteriorly) confluent. On each side there is a dorsolateral band of still darker brown, of irregular width, sometimes interrupted. Lateral (and ventral) to this, the light ground color is mottled in two shades of brown.

**Remarks.** We find it impossible to arrive at a satisfactory determination of this material on the subspecific level.

**Family Colubridae*****Natrix tessellata tessellata* (Laurenti)**

*Coronella tessellata* Laurenti, 1768, Synops. Rept., 87 ("in Japidia, vulgo Cars").

*Natrix tessellata*: Bonaparte, 1834, Iconogr. Faun. Ital., Fasc. 2, 11: Plate, fig. 2.

*Natrix tessellata tessellata*: Sochurek, 1956, Burgenl. Heimatbl., 18: 89.

**Material examined.** IRAQ (1): MCZ 57014, Kish area. IRAN (2): MCZ 57015, Dorud; MCZ 58873, 4 mi. W of Gotwand. WITHOUT DATA (4): HF-79, probably Kish area, Hilla, Iraq.

**Pholidosis.** Specimens with data: scale rows (at midbody), 19; 19; 21. Ventrals, 168; 177; 169. Subcaudals, 70; 59; 65.

**Measurements** (largest specimen [MCZ 57015]). Snout-vent: at least 590 mm. Tail: 134 mm.

**Coloration.** Two specimens represent extremes of the normally very variable ventral pattern. In MCZ 57014 the black areas are particularly restricted; in MCZ 57015 the black color of the posterior abdomen is continued anteriorly (for half the length of the animal) as a median band, of which only the anterior ten ventrals are free (from about the 30th ventral backwards there is also an increasing amount of black mottling on both sides of the median band).

***Coluber jugularis asianus* (Boettger)**

*Zamenis viridiflavus* var. *asiana* Boettger, 1880, Ber. Senckenb. Naturf. Ges., 1879-80: 151.

*Coluber jugularis asianus*: Müller and Wettstein, 1933, Sitzungsber. Akad. Wiss. Wien Math.-Naturw. Kl., Abt. 1, 143: 142.

**Material examined.** IRAQ (3): MCZ 58869, ♀, 58870, ♂, Havdian, near Ruwanduz; MCZ 58871, ♂, Lake Habbaniya.

**Pholidosis.** Scale rows: 21. Ventrals: 198-208. Subcaudals: 106-109.

**Measurements** (Largest specimen [MCZ 58869]). Snout-vent: about 940 mm. Tail: about 335 mm.

**Coloration.** The specimens from Havdian are almost black dorsally; in MCZ 58869 many of the dorsal scales are speckled with



whitish, these light specks often forming a fine line along the middle of the scale (especially near the middle of the body); in MCZ 58870 a very delicate light line runs along each longitudinal series of scales (through the middle of each scale), this pattern increasing in distinctness towards the tail. In both specimens the ventral side is beige (with traces of pink) and heavily speckled with black, in a semi-regular pattern, leaving on every scute an unspeckled crossband close to (not bordering) its caudal margin. The specimen from Lake Habbaniya is brownish grey, and along each longitudinal row of dorsal scales there runs a band of lighter grey, occupying the median third of each scale, and not sharply delimited. Ventrally the black specks are mostly confined to both lateral thirds of each scute.

*Remarks.* According to Khalaf (1959: 75), this snake may reach a length of eight feet. The same, more or less, is true of the Israel population of *C. jugularis*. In comparison to specimens from Israel of equal length, our specimens from Iraq are rather thick bodied. Furthermore, such half-grown specimens from Israel would not have attained the uniform (black) adult coloration, but would, rather, show remnants of the juvenile pattern of darker and lighter spots. Conceivably the specimen from Lake Habbaniya, at least, also presents a relatively light juvenile coloration (Khalaf, 1959: 75).

### *Coluber ventromaculatus* Gray

*Coluber ventromaculatus* Gray (and Hardwicke), 1834, Illus. Indian Zool., 2: pl. 80, fig. 1 (Bengal—Schmidt, 1939: 74).

*Material examined.* IRAQ (1): MCZ 58868, Kish area. WEST PAKISTAN (1): MCZ 54401, ♂, Tatta, in Sind, E of Karachi, 8 March 1955. WITHOUT DATA (1): HF-79, probably Kish area, Hilla, Iraq.

*Pholidosis.* Scale rows: 19. Ventrals: 203; 197; 187. Subcaudals: 99; 110; 88.

*Measurements* (largest specimen [MCZ 54401]). Snout-vent: about 480 mm. Tail:

about 200 mm. The others are juveniles, about 260 and 295 mm snout-vent.

*Coloration.* The pattern of dark crossbands disappears at the level of the cloaca in the adult, but is continued throughout the tail as a series of vertebral spots, then dots in the two juveniles.

*Remarks.* According to Minton (1966: 121) this snake occurs over much of South-western Asia, including Israel. We would like to make use of this opportunity to state that we are aware of no snake specimens from Cisjordan referable to this species.

### *Coluber rhodorachis rhodorachis* (Jan)

*Zamenis rhodorachis* Jan, 1865, in De Filippi, Viagg. Persia, p. 356 (Iran: restricted to Schiras [Shiraz], Central Persia—Kramer and Schnurrenberger, 1963: 501).

*Coluber rhodorachis*, Parker, 1931, Ann. Mag. Nat. Hist., (10) 8: 516.

*Coluber rhodorachis rhodorachis*, Khalaf, 1959, Reptiles of Iraq with some notes on the amphibians, Baghdad, pp. 75–76.

*Material examined.* IRAN (1): MCZ 58872, Mahor Birinji.

*Pholidosis.* Scale rows (at midbody): 19. Ventrals: 236. Subcaudals: 137.

*Measurements.* Snout-vent: about 675 mm. Tail: 280 mm.

*Coloration.* Anterior half of body with crossbands, posterior half uniform. The first third of the banded region is uniquely patterned, in that the dark crossbands are broader (covering the length of about one scale).

*Remarks.* The pattern is surprising, as the several specimens from southern Israel we have examined have dark crossbands that are narrower than the light interspaces, and this is also the pattern of a specimen from Karachi, West Pakistan, depicted by Minton (1966: pl. 25, fig. 1). Another specimen with *broad* dark crossbands has recently been collected at Petra, Jordan (Y. L. Werner, in MS).

### *Eirenis persica* (John Anderson)

*Cyclophis persicus* Anderson, 1872, Proc. Zool. Soc. London, 1872: 392, fig. 8 (Bushire, Persia).

*Eirenis persica*, Stickel, 1951, *Herpetologica*, 7: 128.

*Material examined.* IRAN (3): HF-40, Shalgahi: HF-51(13) and HF-51(14), Mahor Birinji. (All in bad condition.)

*Pholidosis.* Loreal absent, one pre- and one postocular. Upper labial: 7 (but apparently 8/8 in HF-51(13)). Lower labials: 7. Scale rows: 15. Ventrals: (?)194–206. Subcaudals: 50–64.

*Measurements* (largest specimen [HF-40]). Snout-vent: 241 mm. Tail: 58 mm.

*Coloration.* One of the specimens from Mahor Birinji (14) has a barred pattern (= "*Eirenis persica nigrofasciata* Nik."); the other two have unicolored bodies. The latter have three blackish crossbands on the head—one through the supraoculars, one through the parietal, and one on the nape. In the barred specimen, the second and third crossbands are confluent. It has about 57 black half-rings on the body, and thirteen on the tail. Each is one to two scales broad, and the light (yellowish) intervals are three to four scales broad. The ventral side of all specimens is light, uniformly colored.

*Remarks.* The fact that both a barred and unicolored specimen have been collected at the same place (Mahor Birinji) supports Minton's (1966:129) suggestion that these patterns do not indicate geographic races. Thus a subspecific taxonomy of the species, based on the pattern only, appears invalid. Probably the two color patterns represent "phases" of the same population, as has also been suggested by Minton; but the possibility of their representing two sympatric (? sibling) species has not yet been conclusively ruled out.

### *Eirenis collaris* (Ménétriés)

*Coluber collaris* Ménétriés, 1832, *Cat. Rais. Obj. Zool. . . . Voy. Caucase . . .*, p. 67 (Bechebermak, near Caspian Sea).

*Eirenis collaris*, Jan, 1863, *Arch. Zool. Anat. Fisiol.*, Genova, 2: 256.

*Material examined.* WITHOUT DATA (1): HF-79, probably Kish area, Iraq.

*Pholidosis.* Loreal: present. Preoculars: 2/1. Postoculars: 2/2. Upper labials: 7/7. Lower labials: 8/8. Scale rows: 15. Ventrals: 170. Subcaudals: 53.

*Measurements.* Snout-vent: 225 mm. Tail: 61 mm.

*Coloration.* Head mottled with black. A broad, black (very dark brown) crossband on the occiput reaches the sides of the throat, where it is pointed anteriorly. Body with delicate dark longitudinal lines running through the margins of the scales.

### *Eirenis coronella* cf. *coronella* (Schlegel)

*Calamaria coronella* Schlegel, 1837, *Physion. Serp.*, 2: 48 (Syria—Schmidt, 1939: 78).

*Eirenis coronella coronella*, Schmidt, 1939, *Field Mus. Nat. Hist., Zool. Ser.*, 24: 78.

*Material examined.* IRAN (2): HF-40, ♂, Shalgahi. HF-49, juvenile, Mahor Birinji.

*Pholidosis.* Loreal present. Preocular: single. Postoculars: 2/2; 2/1. Upper labials: 7/7; 8/8. Lower labials: 6/6; 7/7. Temporals: 1+2/1+1; 1+1/1+1. Scale rows: 15; 15. Ventrals: ? (damaged); 140. Subcaudals: 43; 44.

*Measurements* (HF-49). Snout-vent: 148 mm. Tail: 37 mm. (HF-40 is too badly damaged to measure.)

*Coloration.* Back with brown crossbands (= half-rings), each about two scales broad, with the lighter intervals about three scales broad. A broad occipital crossband extends to the sides of the throat. Number of dark crossbands (HF-49) on body, 49; on tail, 15. Ventral side uniformly pale buff.

### *Rhynchocalamus* sp.

Plate 20

*Material examined.* IRAN (1): MCZ 56877, Shalgahi.

*Pholidosis.* Nasal undivided. Loreal present, about twice the size of the preocular. Preocular and postocular single. The large, spatulate rostral nearly separates the internasals; it is as long (seen from above) as the combined sutures be-

tween the two internasals and between the two prefrontals. Upper labials: 7/7. Lower labials: (2) 8/8. Scale rows: 15. Ventrals: 219. Subcaudals: 62.

*Measurements.* Snout-vent: 138 mm. Tail: 28 mm.

*Coloration.* Pale yellowish beige, without any pattern except for a pair of brown patches on the neck. Each patch starts about three scales behind the pileus, is about eight scales long, and one to two scales broad (narrow anteriorly, broad posteriorly). There is also a microscopical brown patch at the upper anterior corner of each eye.

*Remarks.* This appears to be the specimen described by Reed and Marx (1959: 109–113) under *R. satunini* Nikolski, HF-40. It is true that the pholidosis of our specimen agrees with that of *R. satunini*, which these authors separate from *R. melanocephalus* Jan, and in particular with that of specimen FMNH 74605, from Jarmo in northern Iraq. However, the difference in pattern between our specimen and all *satunini* specimens recorded so far from Anatolia, Armenia, and northern Iraq is striking. It is hard to accept Reed's and Marx's interpretation of the pattern of the Shalgahi specimen as being that of a juvenile, since normally when a juvenile pattern changes into a different adult pattern a process of reduction is involved—not one of expansion, as would be the case here. We feel it would be premature to apply specific or subspecific determination to the single juvenile specimen before us, which apparently is the only specimen of the genus so far reported from Iran. It is evidently closely allied to *R. satunini*. Among the Pakistanian forms, *Oligodon taeniolatus* (Jerdon) is the most similar in pholidosis to the Shalgahi specimen, yet has a divided nasal and higher numbers of postoculars and temporals (at least within Pakistan, if not within India—Minton, 1966: 133).

### *Psammophis cf. schokari* Forskål

*Coluber schokari* Forskål, 1775, Descr. Anim., p. 14 (Yemen, S. Arabia).

*Psammophis schokari*, Boulenger, 1896, Cat. Snakes Brit. Mus., 3: 157.

*Material examined.* IRAN (1): HF-49 ("10"), Mahor Birinj.

*Pholidosis.* Scale-rows: 17. Ventrals: 179. Subcaudals: 125.

*Measurements.* Snout-vent: about 400 mm. Tail: 197 mm.

*Coloration.* A pattern of four dark brown longitudinal bands, which does not include the pileus; latter adorned with complex anchor-like pattern. The two median bands are separated from each other by less than the breadth of a scale. On each of the four dark bands the margins are accentuated by a row of darker dashes. There is a pair of ventrolateral delicate dark lines.

*Remarks.* The badly damaged head introduces an element of doubt into the identification of this specimen.

### *Psammophis leithi* Günther

*Psammophis leithi* Günther, 1869, Proc. Zool. Soc. London, 1869: 505, pl. 39 (Sind).

*Material examined.* WEST PAKISTAN (1): MCZ 54406, juvenile, Big Kapoto, 10 mi. S of Kalat, Baluchistan, 1955.

*Pholidosis.* Scale rows: 17. Ventrals: 178. Subcaudals: 105.

*Measurements.* Snout-vent: about 300 mm. Tail: about 130 mm.

*Coloration.* Back with two pairs of dark bands, the median pair a nearly uniform blackish brown; each lateral band is of a somewhat lighter shade, with darker margins (same color as median bands). The lateral bands extend forward to the eye, and are represented in a somewhat modified manner on the snout. The median pair is continued forward, on either side of the pileus, to the nostril. Along the middle of the pileus, from the suture between prefrontals and frontal to the end of the parietals, there runs a fifth brown band.

This pattern apparently agrees with that described by Minton (1966: 141) of *P. leithi* from West Pakistan, but differs somewhat from that depicted by Smith (1943: 366) of the British Museum specimen BM 91.9.1.5.

## Family Elapidae

### *Walterinnesia aegyptia* Lataste

#### Plate 21

*Walterinnesia aegyptia* Lataste, 1887. *Le Naturaliste*, 1887: 411 (Egypt).

*Material examined.* IRAN (1): MCZ 56878, Mahor Birinji.

*Pholidosis.* Scale rows: 23. Ventrals: 193. Subcaudals: 44. On the right side there are two preoculars, both touching the nasal.

*Measurements.* Snout-vent: about 355 mm. Tail: 47 mm.

*Coloration.* This specimen, evidently a juvenile, is striking in having the typical dark color (in this case, a very dark violet-brown) interrupted by 26 fairly regular, narrow, pale crossbands (pinkish brown). Each pale saddle is no broader middorsally than the length of one or one and a half scales, but each broadens ventrolaterally to a maximum breadth equalling the length of three scales. Ventrolaterally the light saddles are separated from the similarly light ventrals by two rows of normal dark scales. Middorsally the dark areas between succeeding light saddles occupy as much as six to seven scales. In the nuchal region there is an indication of a ventrolateral pale connection from the third pale saddle towards the head, indicating a modified nuchal pattern. The light crossbands stop a short distance before the vent, but a few light spots are scattered on the anterior third of the tail.

*Remarks.* S. C. Anderson (1963: 470–471) mentions three specimens from the very same area and refers to a fourth, juvenile, specimen, in the collection of the hospital at Masjid-i-Suleiman, as having “very narrow light crossbands.” We are acquainted with juveniles of *Walterinnesia*

*aegyptia* from Israel, of similar and smaller sizes. These have the typical uniform blackish color of the adults. It is noteworthy that the place of origin of the cross-banded juveniles coincides with the type localities for *Naja morgani* Mocquard 1905 (= *Atractaspis wilsoni* Wall 1908—Marx, 1953), as S. C. Anderson (1963: 470) pointed out. Perhaps, after all, *Naja morgani* and *Walterinnesia aegyptia* are not quite the same thing. A reinvestigation of this problem should take into account a greater number of characters, including the color pattern.

## Family Viperidae

### *Vipera lebetina* cf. *euphratica* (Martin)

*Vipera euphratica* Martin, 1838. *Proc. Zool. Soc. London*, 1838: 82 (Euphrates Valley).

*Vipera lebetina euphratica*, Schmidt, 1939, *Field Mus. Nat. Hist., Zool. Ser.*, 24 (7): 87.

*Material examined.* IRAQ (1): MCZ 58875, ♂, Havdian, near Ruwanduz. WITH-OUT DATA (1): HF-79, ♂, probably Kish.

*Pholidosis.* Upper labials: 11/12; 11/10. Lower labials: 13/13; 12/13. (The labial counts for the first specimen are somewhat doubtful owing to the badly damaged head.) Scale rows: 25; 27. Ventrals: 170; 173. Subcaudals: 45; 46.

*Measurements.* MCZ 58875—Snout-vent: 630 mm. Tail: 93 mm. HF-79—Snout-vent: 265 mm. Tail: 43 mm.

*Coloration.* Back with traces of dark crossbands, which even in the juvenile are not distinct enough to be counted. Darker crossbands on each flank (ventrolaterally) alternate with these. The ventral side is stippled with brownish grey; part of the stippling of each scute is concentrated into a few roundish spots. The lateralmost of these are darkest, and confluent with the ventrolateral crossbands. The most distinct markings on the head are a couple of blackish brown spots on either lower lip.

*Remarks.* Schmidt (1939: 87) reports on a specimen measuring 1270 mm from snout to vent (tail, 150 mm), from Balad Sinjar, northwestern Iraq.



***Cerastes cerastes* (Linnaeus)**

*Coluber cerastes* Linnaeus, 1758, Syst. Nat., p. 271 ("Oriente"—see remarks below).

*Cerastes cornutus*, Boulenger, 1896, Cat. Snakes Brit. Mus., 3: 502.

*Cerastes cerastes*, Anderson, 1899, K. Svenska Vetensk-Akad. Handl., Stockholm, Bihang, (4) 24 (6): 29.

**Material examined.** SAUDI ARABIA (1): Badanah on Tapline, without number, head only.

**Pholidosis.** Rows of scales between eye and upper labials (counted diagonally): 5/6. Number of scales surrounding eye: 15/16. Horns well developed, as long (base included) as the distance from snout to eye; each surrounded by five basal scales. Upper labials, 15/15; lower labials, 15/15.

**Remarks.** Haas (1957: 82-83) reports on 23 specimens from Saudi Arabia, only five of which were horned. In Sinai, too, there occur both horned and hornless specimens (Flower, 1933: 831). However, in Israel (in the Wadi Arava [Wadi Araba]), only hornless specimens have been found so far (personal observation). Therefore, Schmidt's (1939: 88) restriction of the type locality to "southern Judaea," appears to be in conflict with the fact that the original description was of a horned snake (Linnaeus, 1766: 376). In fact, Hasselquist (1766: 221) says expressly, "Coluber cerastes. The horned Viper. It is a native of Egypt." Hence there is every reason to accept Flower's (1933: 830) restriction of the type locality to Egypt (Kramer and Schnurrenberger, 1963: 539).

***Echis carinatus* (Schneider)**

*Pseudoboa carinata* Schneider, 1801, Hist. Amphib., 2: 285 (India: Arni, near Madras—Minton, 1966: 159).

*Echis carinatus*, Wagler, 1830, Natürliches System der Amphibien, etc., Munich, p. 177.

**Material examined.** WEST PAKISTAN (1): MCZ 54405, Tatta, in Sind, E of Karachi.

**Pholidosis.** Scale rows: 29. Ventrals: 170. Subcaudals: 34.

**Measurements.** Snout-vent: 523 mm. Tail: 54 mm.

**Coloration.** The pattern is typical (Minton, 1966: 160, pl. 36, fig. 1). There are 36 white vertebral spots on the body and 8 small ones on the tail.

**Remarks.** Constable (1949) divided this species into two subspecies, but Minton (1966: 160) showed that this arrangement is not acceptable without further study.

**DISCUSSION**

**General Biogeography of Southwestern Asia.** The entire area from which the present material originates (excepting, perhaps, the Trucial Oman Coast) was included by Wallace (1876) in his Mediterranean Sub-Region of the Palaearctic Region. Wallace's subdivision of the Palaearctic, like the rest of his zoogeography, has been enjoying general acceptance (thus Bartholomew, *et al.*, 1911; Swan and Leviton, 1962), although the justification of a separate Mediterranean sub-region, in particular, has been questioned by zoogeographers. According to Beaufort (1951: 41), this is only a "transition region," which is "often considered . . . distinct," and Darlington (1957: 442) does not consider it "worth formal recognition, although 'Mediterranean' is a useful descriptive term for some distributions."

A school of Near East biogeographers, with which most herpetologists are not familiar, maintains that the vagueness of Wallace's Mediterranean Sub-Region is due not to his having split off an unreal unit, but to his having lumped together three territories that are quite different in general ecology and animal life. These are termed the Mediterranean (*sensu stricto*), Irano-Turanian, and Saharo-Sindian sub-regions (or regions, or territories). Together they occupy a somewhat wider area than the Mediterranean Sub-Region (*sensu lato*) of Wallace (Fig. 13). This arrangement, based on the work of Grisebach (1872), has been elaborated by the botanist Eig (1831) with particular reference to

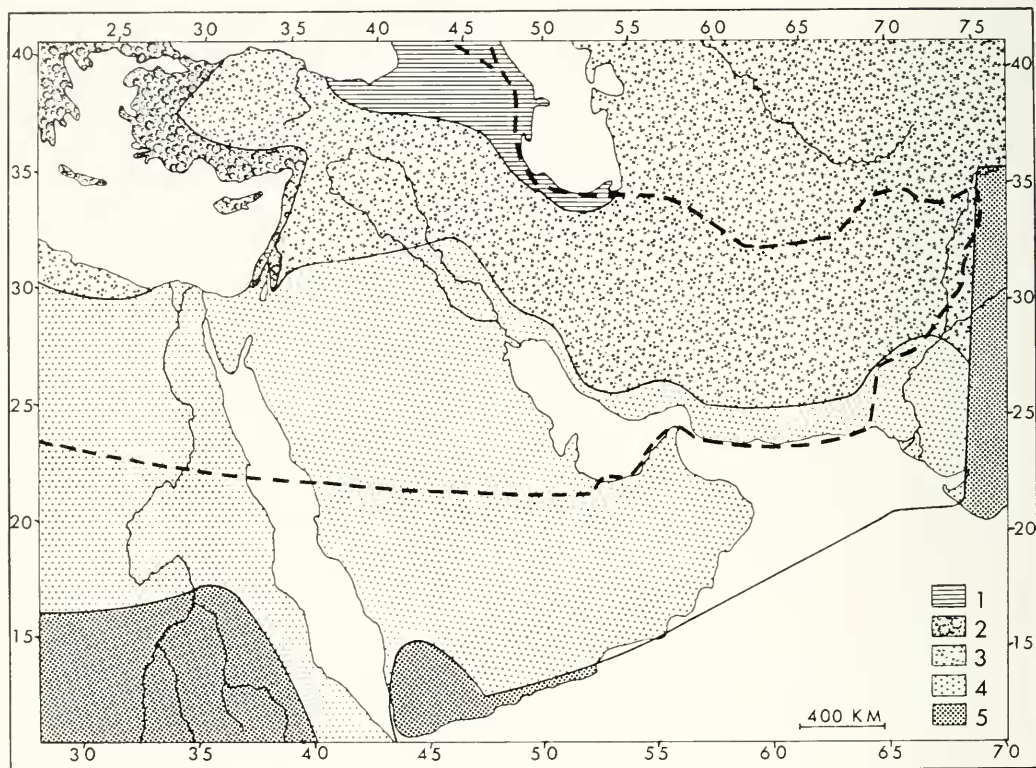


Figure 13. Sketch map of Southwestern Asia (with adjacent areas of Europe and Africa). The heavy interrupted line represents Wallace's (1876) boundary of the Mediterranean Sub-Region. Shaded areas represent zoogeographical regions after Bodenheimer (1956).

- (1-4) Sub-Regions of the Palaearctic region: (1) Euro-Siberian Calchis Province; (2) Mediterranean; (3) Irano-Turanian; (4) Saharo-Sindian.  
(5) Sub-Regions of the Palaearctic Region.

Palestine, and its basic concepts are accepted by contemporary Israeli botanists (thus Zohary, 1955; Zohary and Feinbrun-Dothan, 1966). Among zoologists, Bodenheimer (1935, 1937, 1953, and 1956) has been its chief advocate.

As Figure 13 shows, according to this arrangement, the area dealt with in this paper is divided between the Irano-Turanian and the Saharo-Sindian sub-regions. It must, of course, be realized that in nature there are usually no sharp boundaries between adjacent zoogeographical regions or sub-regions, but, rather, very broad zones of overlap.

In one respect, Bodenheimer's (Eig's)

arrangement is a revision to Selater's (1858) original proposal. In Africa and Southwestern Asia, Bodenheimer's line separating the Mediterranean and Irano-Turanian sub-regions, on the one hand, from the Saharo-Sindian Sub-Region, on the other, nearly coincides with Selater's border between the Palaearctic Region, on the one hand, and the Ethiopian and Indian regions, on the other (Bartholomew, *et al.*, 1911: pl. 2). As a matter of fact, in Southwestern Asia and North Africa, at least, Bodenheimer's map is in much better agreement with recent maps of soils, rainfall, and vegetation (e.g., Oxford Univ. Press, 1960) than is Wallace's map.

We shall not argue here the merits of either biogeographical scheme; our observations show only too well that the time is not yet ripe for a synthetic discussion of the herpetofauna of Southwestern Asia. Too many of the species are insufficiently known taxonomically, to say nothing of their biology, ecology, or exact distribution, which are almost unknown. Thus the herpetological material in itself can so far contribute little to zoogeographical discussions. Having briefly mentioned the two principal approaches to the biogeography of Southwestern Asia, we shall now merely present a list of the species reported here from each area.

*Regional species lists.* These lists are confined to material reported in the present paper. Specimens without data are excluded.

SYRIA (All localities are within the range of 250–1000 m above sea level).

*Acanthodactylus cf. tristrani orientalis*  
Angel

*A. robustus* F. Werner

*A. grandis* Boulenger

*Eremias brevirostris brevirostris* (Blanford)

ARABIA (No further data).

*Stenodactylus slevini* Haas

*Bunopus tuberculatus* Blanford

*Cerastes cerastes* (Linnaeus)

SAUDI ARABIA: ALONG THE TRANS-ARABIAN PIPELINE (TAPLINE) (including Turaif and Al-Gaisumah).

*Agama cf. persica* Blanford

*A. persica fieldi* subsp. nov.

*A. pallida* Reuss

*Uromastix microlepis* Blanford

*Acanthodactylus boskianus asper*  
(Audouin)

*Eremias guttulata guttulata* (Lichtenstein)

*E. olivieri* ssp.

*E. brevirostris cf. brevirostris* (Blanford)

*Scincus conirostris* Blanford

*Diplometopon zarudnyi* Nikolski

ARABIAN PENINSULA AND BAHRAIN ISLAND.

(including Dhahran, Al-Uqair, and Bahrain).

*Bunopus blanfordii* Strauch

ARABIAN PENINSULA: TRUCIAL OMAN COAST (including Sharjah).

*Hemidactylus flaviviridis* Rüppell

*Cyrtodactylus scaber* (Heyden)

*Pristurus cf. rupestris* Blanford

*Phrynocephalus cf. maculatus* Anderson

*Chalcides ocellatus ocellatus* Forskål

IRAQ: SLOPES OF THE KURDISTAN MOUNTAINS (including Havdian near Ruwanduz).

*Lacerta trilineata media* (Lantz and Cyrén)

*L. cf. strigata* Eichwald

*Mabuia vittata* Olivier

*Coluber jugularis asianus* Böttger

*Vipera lebetina cf. euphratica* (Martin)

IRAQ: QAARA DEPRESSION NORTH OF RUTBA (including IPC Station H-2; elevations between 250–1000 m).

*Agama pallida* Reuss

*Eremias guttulata guttulata* (Lichtenstein)

*E. brevirostris brevirostris* (Blanford)

IRAQ: EUPIRATES VALLEY (including Abu Ghraib, Haditha, Lake Habbaniya, IPC Station K-3, IPC Station T-1; elevations between 0–500 m above sea level).

*Bunopus tuberculatus* Blanford

*Ptyodactylus hasselquistii* ssp.

*Agama pallida* Reuss

*Acanthodactylus boskianus asper*  
(Audouin)

*A. scutellatus hardyi* Haas

*A. tristrani iracensis* Schmidt

*Eremias guttulata guttulata* (Lichtenstein)

*E. brevirostris brevirostris* (Blanford)

*Mabuia aurata septemtaeniata* Reuss

*M. vittata* Olivier

*Eryx jaculus* ssp.

*Natrix tessellata tessellata* (Laurenti)

*Coluber ventromaculatus* Gray

IRAN: LURISTAN MOUNTAINS (including Dorud, Mazuo, and Zagheh; all above 1000 m).

*Phyllodactylus elisae* (F. Werner)

*Ophisops elegans cf. elegans* Ménétriés

*Typhlops* cf. *vermicularis* Merrem

*Natrix tessellata tessellata* (Laurenti)

IRAN: HESHOMI PLAIN (including Dizful, Gotwand, Mahor Birinji, and Shalgahi; all between 0–500 m above sea level).

*Bunopus tuberculatus* Blanford

*Cyrtodactylus scaber* (Heyden)

*Agama agilis* ssp.

*A. nupta nupta* De Filippi

*Uromastix loricatus* Blanford

*Ophisops elegans* cf. *elegans* Ménétriés

*O. elegans* ssp.

*Eremias guttulata watsonana* Stoliczka

*E. brevisrostris fieldi* subsp. nov.

*Mabuya aurata septemtaeniata* Reuss

*Eryx jaculus* ssp.

*Natrix tessellata tessellata* (Laurenti)

*Coluber rhodorachis rhodorachis* (Jan)

*Eirenis persica* J. Anderson

*E. coronella* cf. *coronella* (Schlegel)

*Rhynchocalanus* sp.

*Psammodromus* cf. *schokari* Forskål

*Walterinnesia aegyptia* Lataste

WEST PAKISTAN (mainly Baluchistan).

*Hemidactylus flaviviridis* Rüppell

*Calotes versicolor* (Daudin)

*Agama agilis agilis* ssp.

*A. melanura* Blyth

*A. caucasica* ssp.

*Phrynocephalus scutellatus* (Olivier)

*Acanthodactylus cantoris blanfordi*

Boulenger

*A. micropholis* Blanford

*Eremias guttulata watsonana* Stoliczka

*E. brevisrostris brevisrostris* (Blanford)

*Eumeces zarudnyi* Nikolski

*Mabuya macularia* Blyth

*Ophiomorus tridactylus* Blyth

*Coluber ventromaculatus* Gray

*Psammodromus leithi* Günther

*Echis carinatus* (Schneider)

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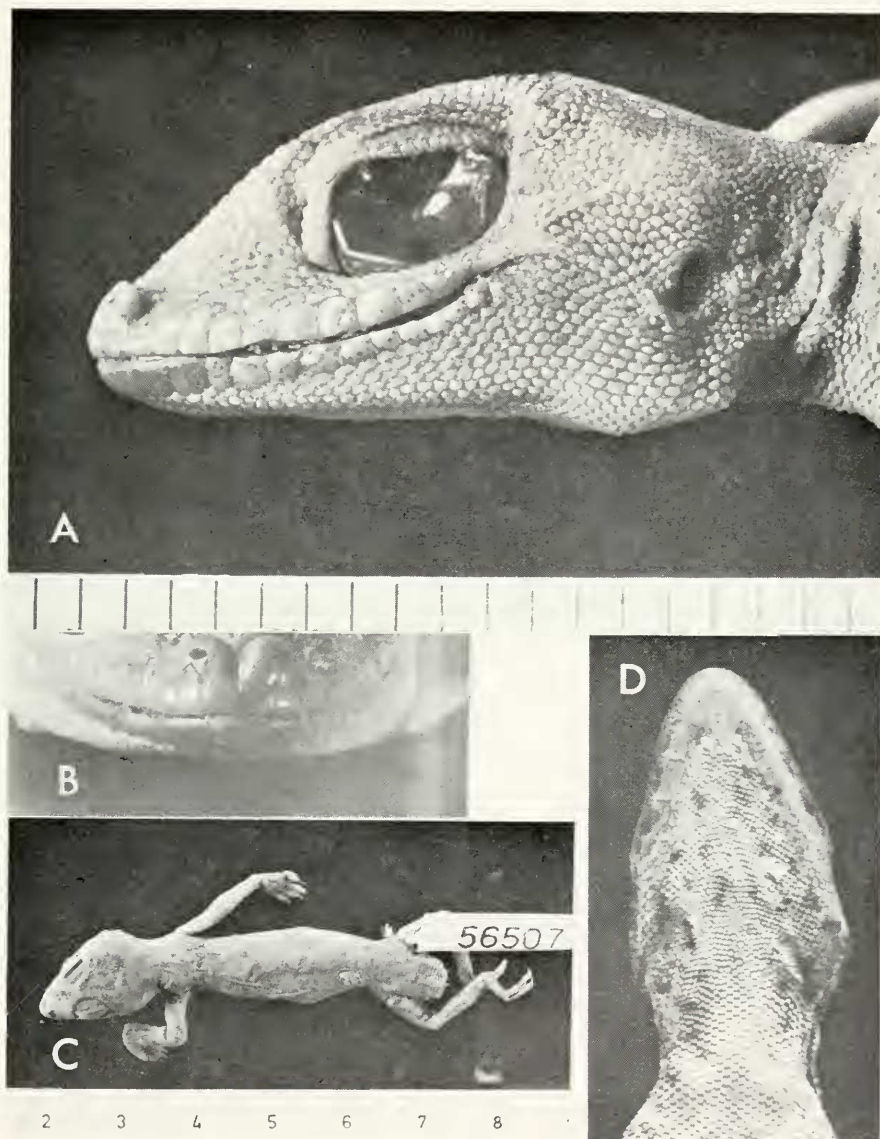


Plate 1. A-C, *Stenodactylus slevini*, MCZ 56507, ♂.

A, Head, lateral view.

B, Snout, anterior view.

C, Whole specimen, dorsal view.

D, *Pristurus* cf. *rupestris*, MCZ 56518, throat.

Scales: A, B, and D, at the same magnification, mm; C, cm and mm.

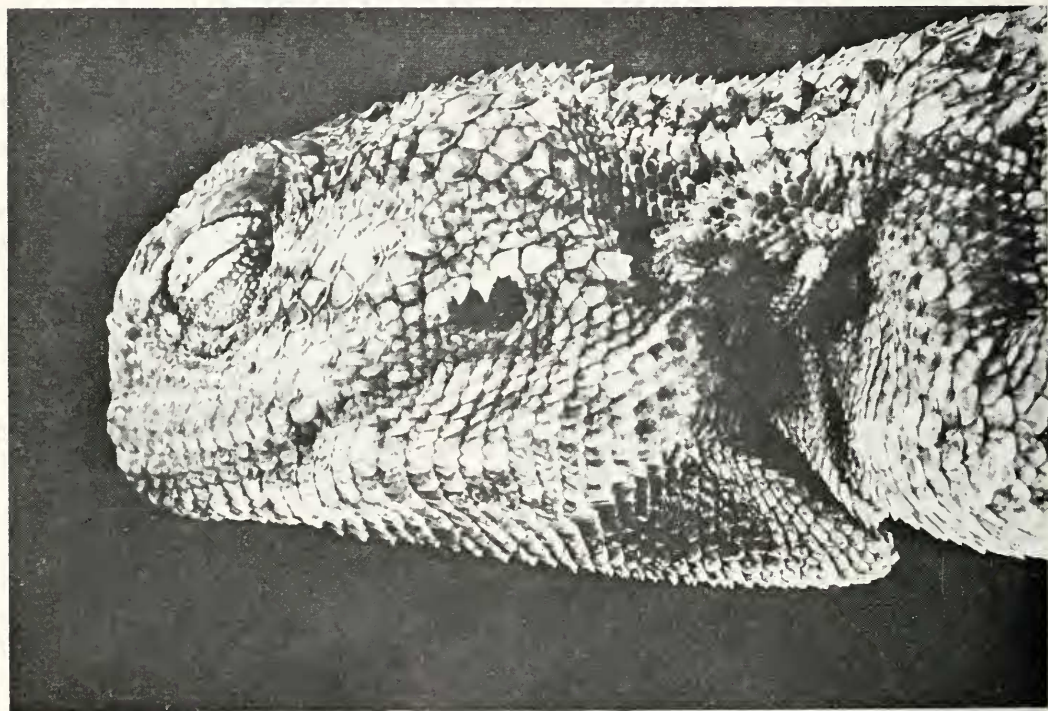


Plate 2. *Agama persica fieldi* subsp. nov., MCZ 56866, ♂, type. Head, lateral view. Scale: mm.

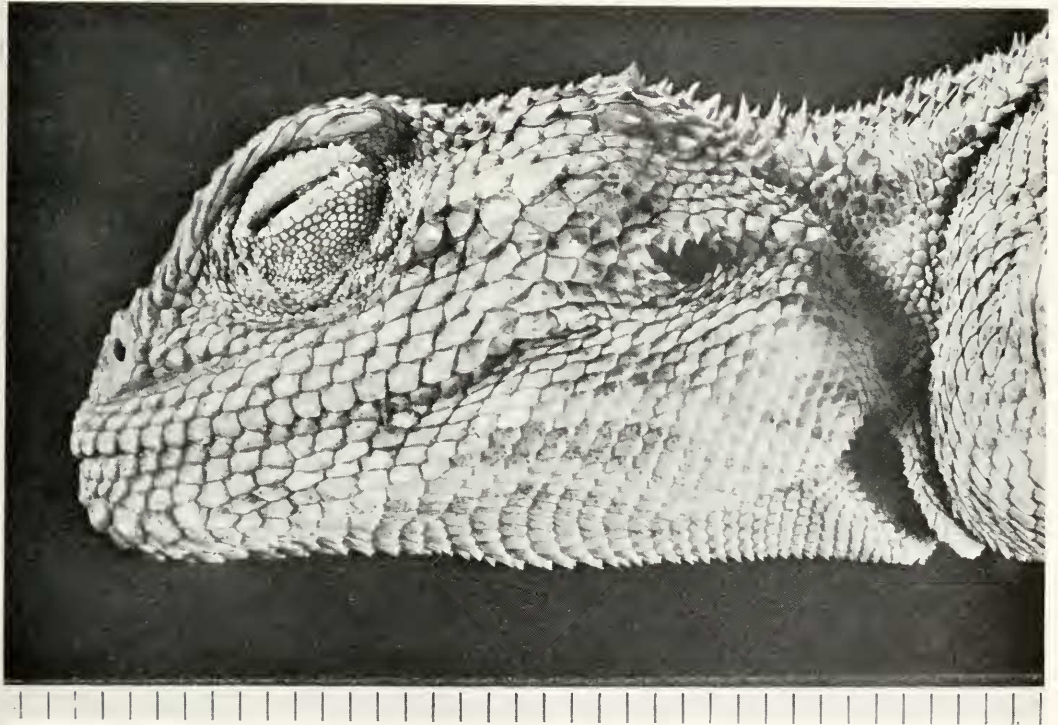
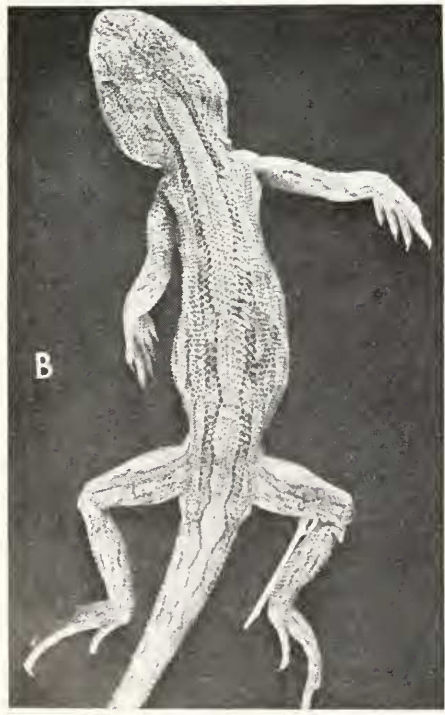
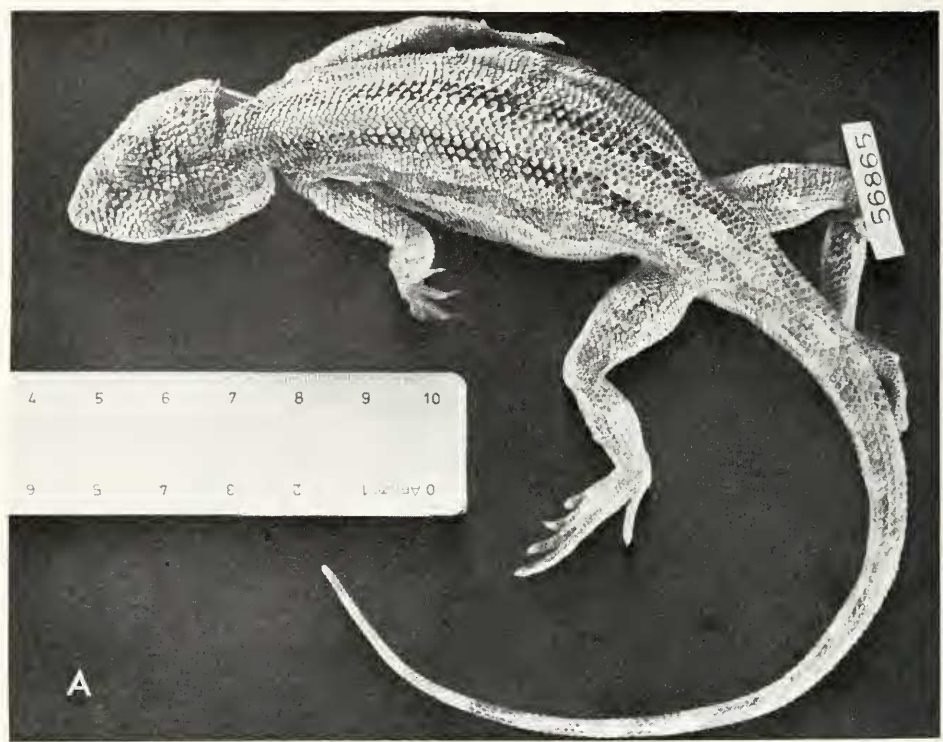


Plate 3. *Agama persica fieldi* subsp. nov., MCZ 56865, ♀ paratype. Head, lateral view. Scale: mm.





Plate 4. *Agama persica fieldi* subsp. nov., MCZ 56866, ♂, type. Right, dorsal view; Left, ventral view. Scale: cm and mm.



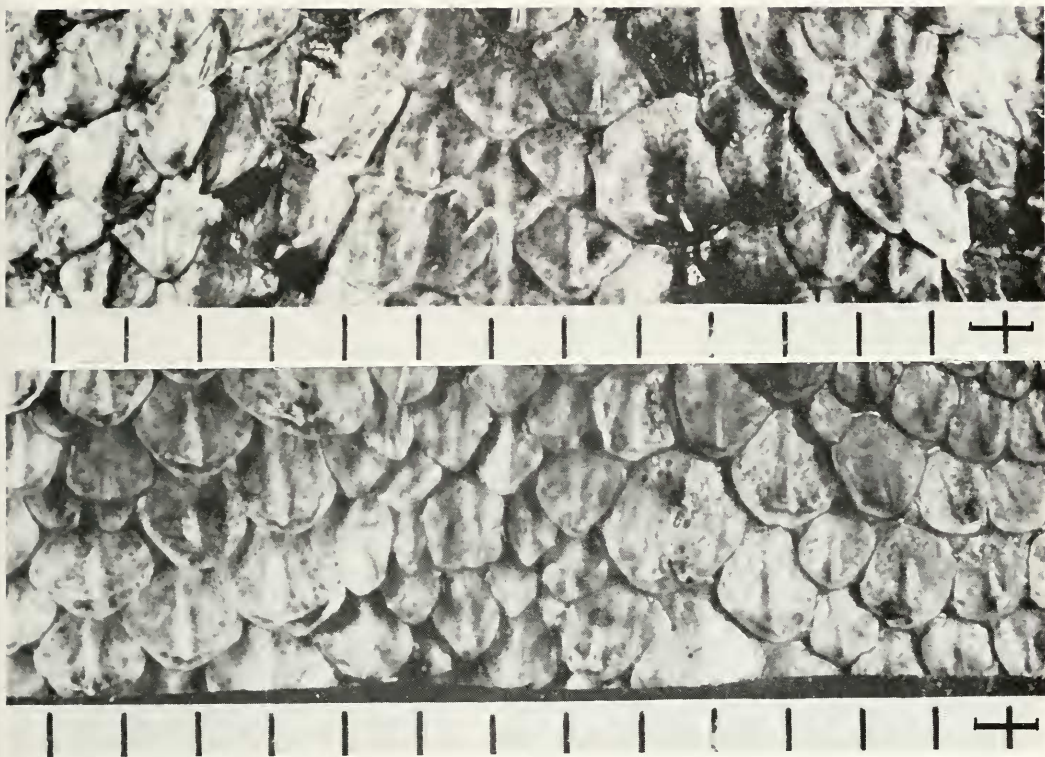


Plate 6. *Agama persica fieldi* subsp. nov., middorsal scales of:

Above, MCZ 56866, ♂, type.

Below, MCZ 56858, ♀ of "other material."

Scale: mm. The horizontal scale bar (at the lower right) represents 1 per cent of the snout-vent length of the respective specimen.

←

Plate 5. *Agama persica fieldi* subsp. nov., dorsal views of:

A, MCZ 56865, ♀ paratype.

B, MCZ 56864, juvenile paratype.

C, MCZ 56858, ♀ described under "other material."

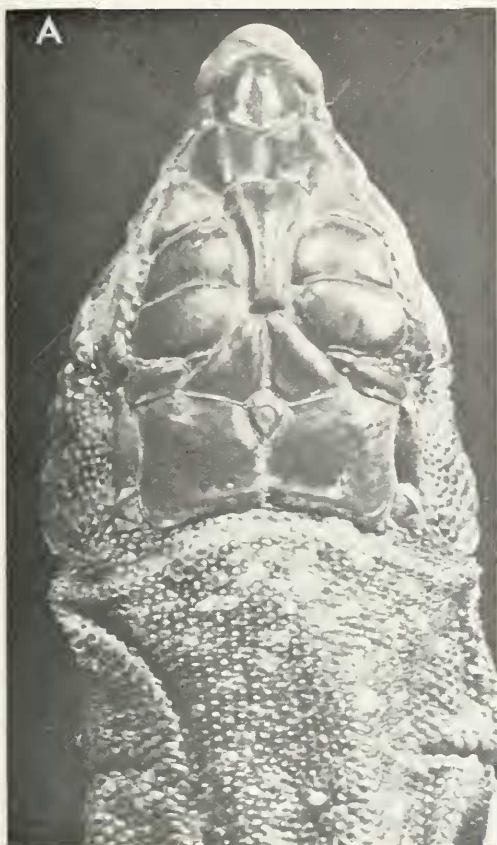
All at the same magnification. Scale: cm and mm.



Plate 7. *Uramastix microlepis*, MCZ 56831 (FMNH 65908). Juvenile, dorsal view. Scale: cm and mm.

Plate 8. A-C, *Acanthodactylus scutellatus hardyi*.  
A, MCZ 56652, head, dorsal view.  
B, MCZ 56650, head, dorsal view.  
C, MCZ 56652, right foot.  
D, *Acanthodactylus baskianus asper*, MCZ 56643, left foot.  
All at the same magnification. Scale: mm.





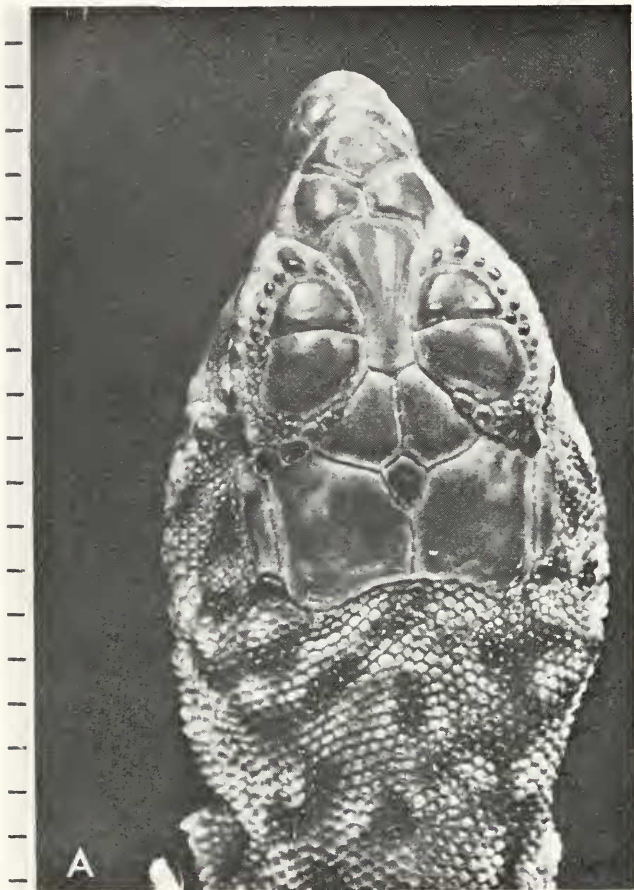


Plate 9. *Acanthadactylus tristrami iracensis*, MCZ 56654.

A, Head, dorsal view.

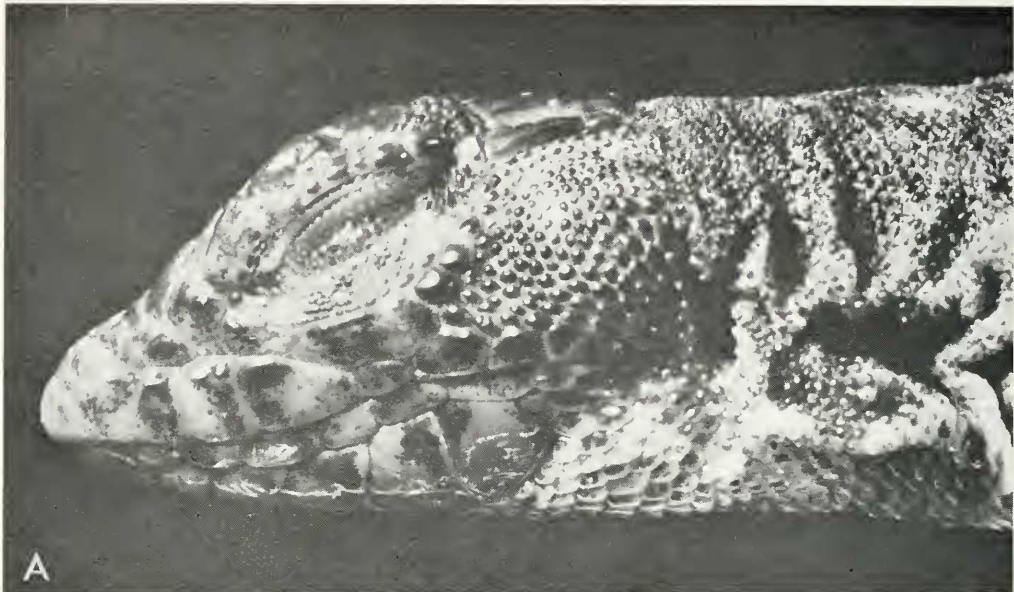
B, Head, lateral view.

C, Whole specimen, dorsal view.

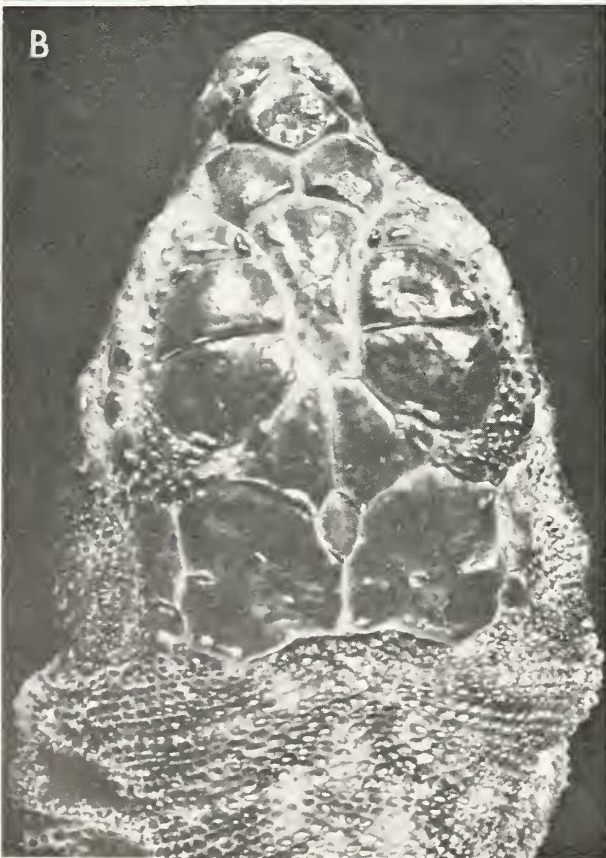
D, Left foot.

Scales: A, B, and D, at the same magnification, mm; C, cm and mm.

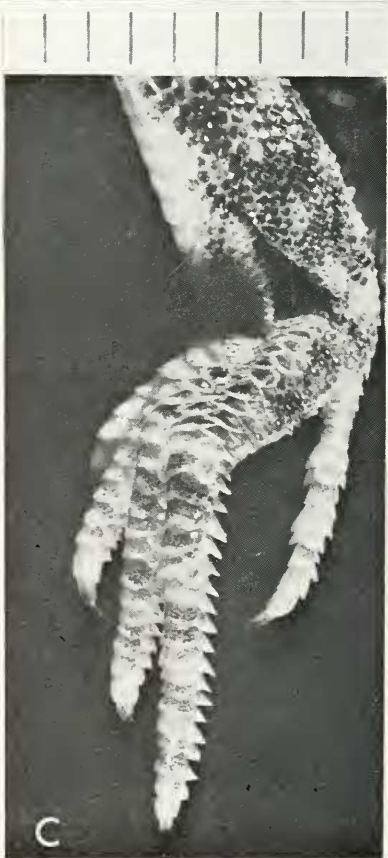




A



B



C



Plate 10. *Acanthodactylus robustus*, MCZ 56659.

A, Head, lateral view.

B, Head, dorsal view.

C, Left foot.

All at the same magnification. Scale: mm.

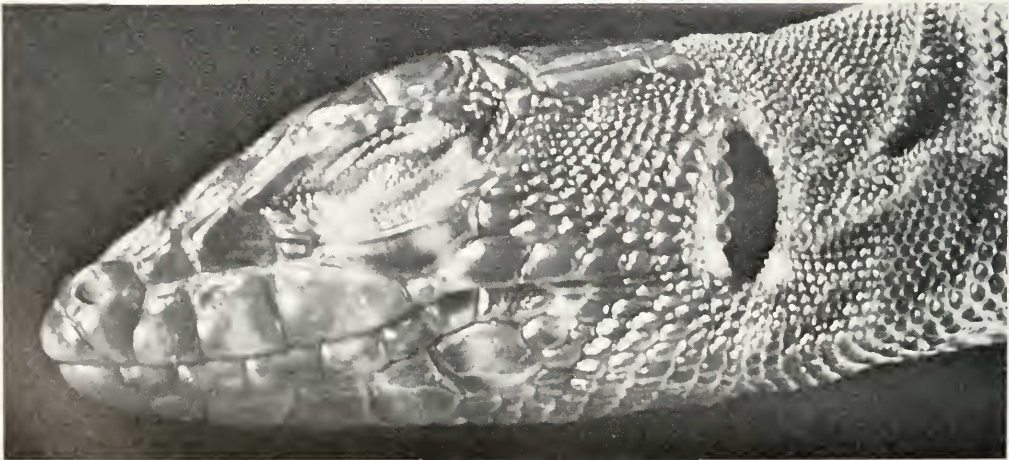
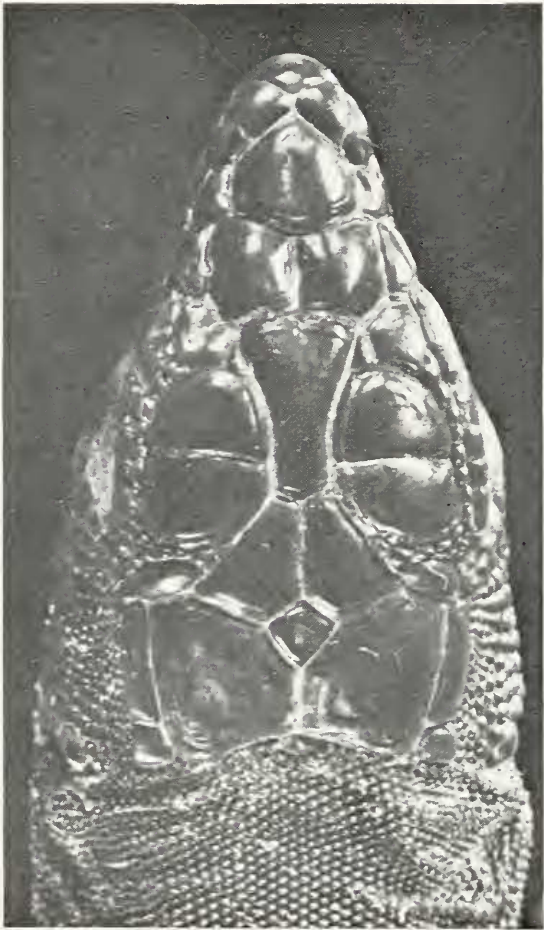


Plate 11. *Acanthodactylus grandis*, MCZ 56644, head. Above, dorsal view; Below, lateral view. Both at the same magnification. Scale: mm.

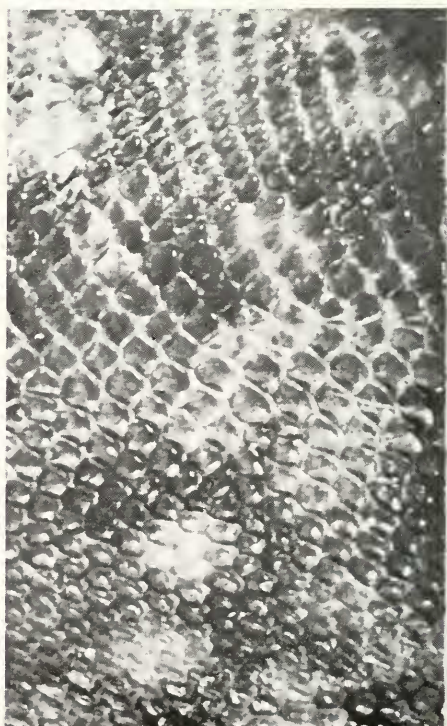
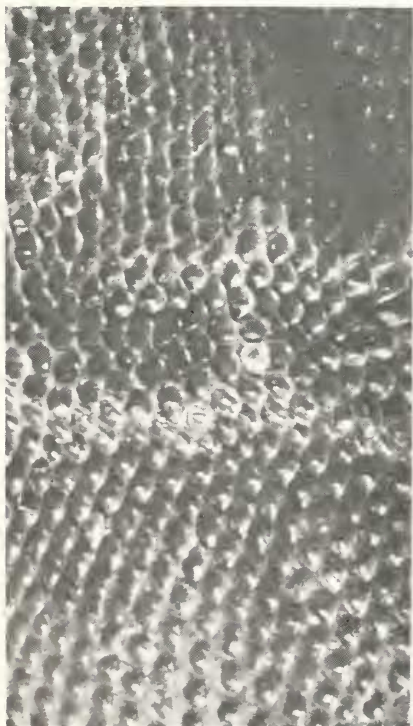
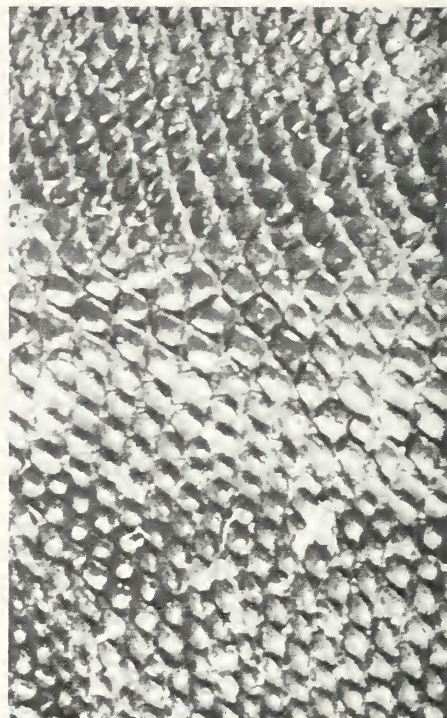
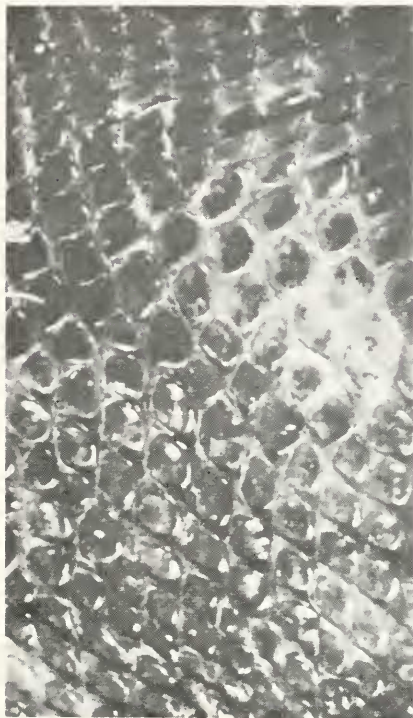




Plate 12. *Acanthodactylus* spp., middorsal scales of:

A, *A. scutellatus hardyi*, MCZ 56650.

B, *A. tristrami iroensis*, MCZ 56654.

C, *A. robustus*, MCZ 56649.

D, *A. grandis*, MCZ 56644.

Scales: mm. The horizontal scale bar (near the lower right of each figure) represents 1 per cent of the snout-vent length of each specimen.

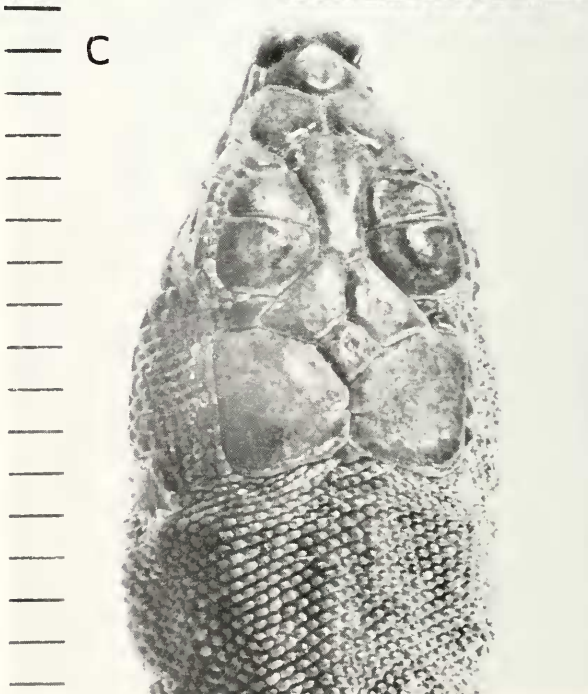
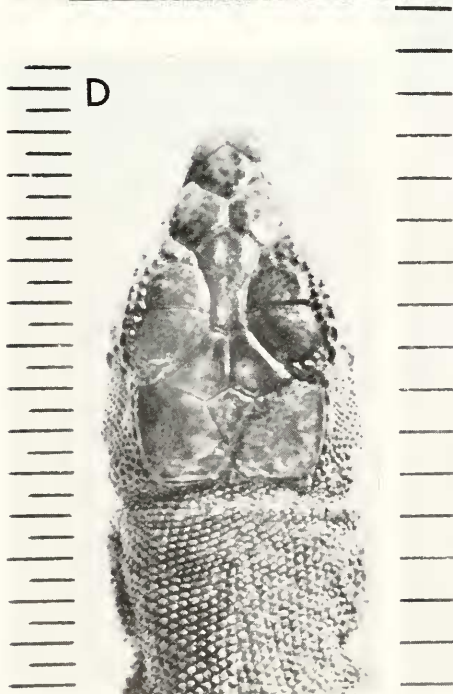


Plate 13. *Eremias brevirostris brevirostris*, head, dorsal view, of:

A, MCZ 56586, ♂ from northeastern Syria (snout-vent: 50 mm).

B, MCZ 56588, from Iraq (Lake Habbaniya) (snout-vent: 43 mm).

C, MCZ 56592, ♂ from Iraq (Lake Habbaniya) (snout-vent: 60 mm).

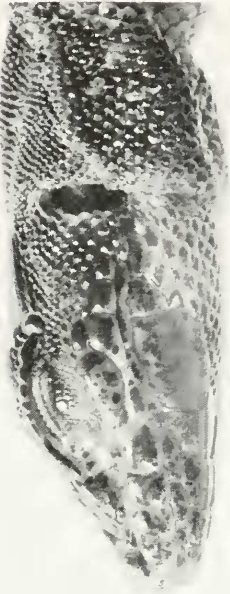
D, MCZ 56571, ♀ from Saudi Arabia (snout-vent: 41 mm).

Scales: A, B, and C, mm; D, mm and half-mm.

A



B



C



D





Plate 14. *Eremias brevirostris brevirostris*, head, lateral view, of:

A, MCZ 56586, ♂ from northeastern Syria (snout-vent: 50 mm).

B, MCZ 56587, ♀ from eastern Syria (snout-vent: 45 mm).

C, MCZ 56592, ♂ from Iraq (Lake Habbaniya) (snout-vent: 60 mm).

D, MCZ 56656, ♀ from Iraq (Station K-3) (snout-vent: 50 mm).

All at the same magnification. Scales: mm.

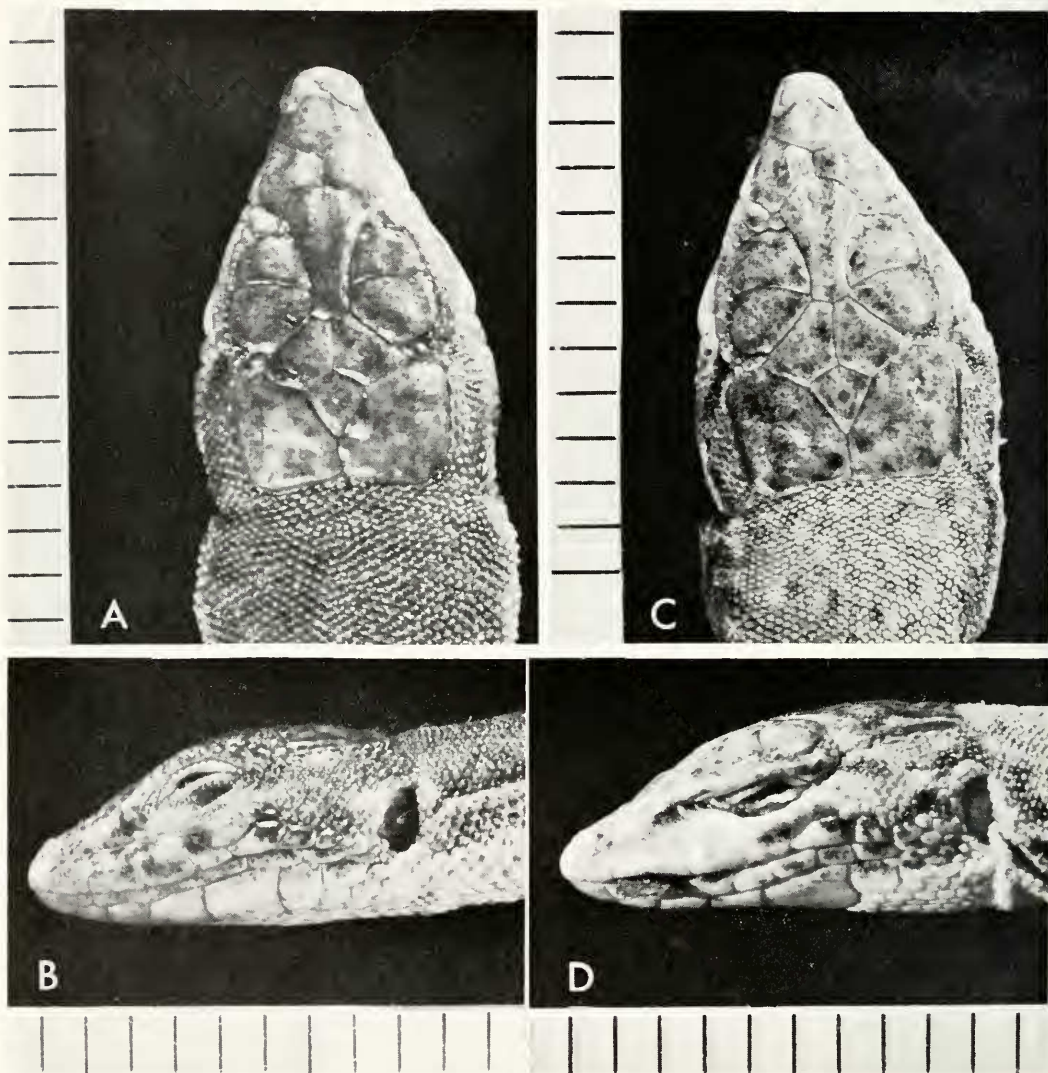


Plate 15. *Eremias brevirastris brevirastris*, head of:

A, MCZ 56567, ♂ from Saudi Arabia, dorsal view (snout-vent: 47 mm).

B, MCZ 56571, ♀ from Saudi Arabia, lateral view (snout-vent: 41 mm).

C, D, MCZ 54441, from West Pakistan (snout-vent: ca. 41 mm); C, dorsal view, D, lateral view.

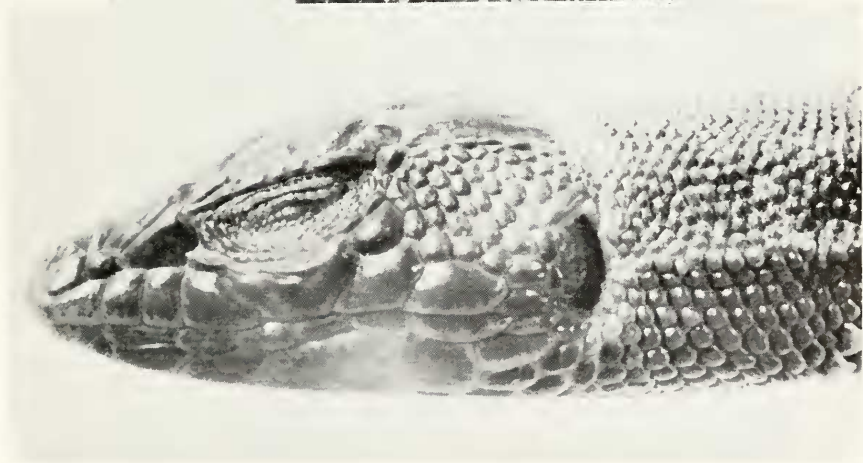
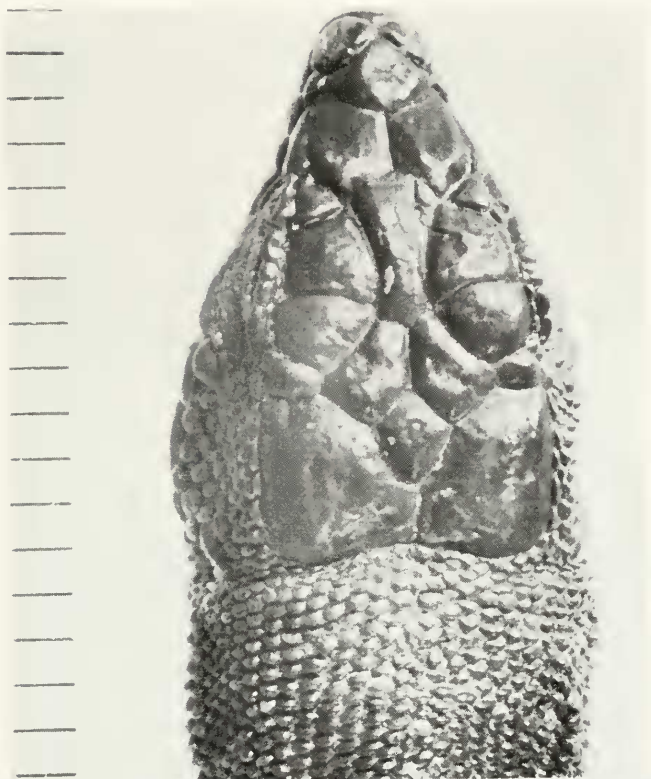


Plate 16. *Eremias brevirostris lieldi* subsp. nov., MCZ 56617, ♂, type (snout-vent 58 mm), head. Above, dorsal view; Below, lateral view. Both at the same magnification. Scale: mm.





Plate 17. *Eremias brevirastris fieldi* subsp. nov., MCZ 56618, ♀ paratype (snout-vent: 61 mm), head. Above, dorsal view; Below, lateral view. Both at the same magnification. Scale: mm.

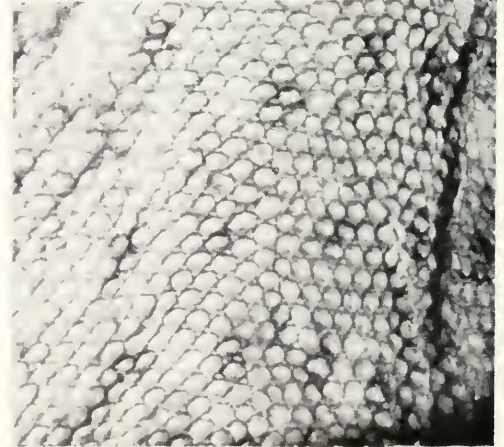
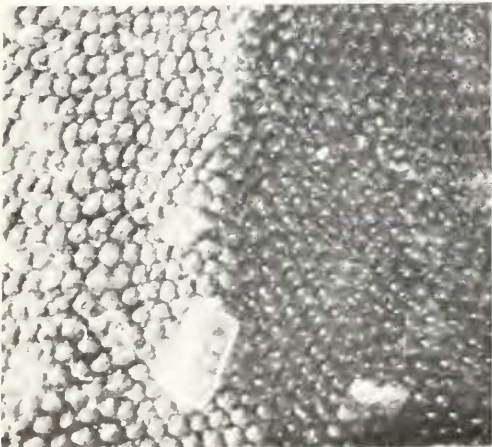
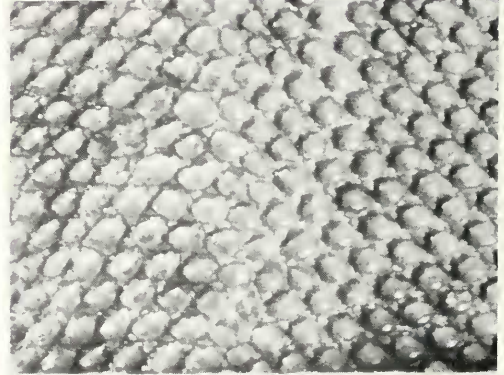
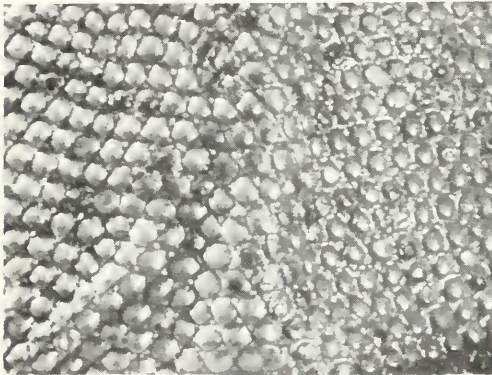
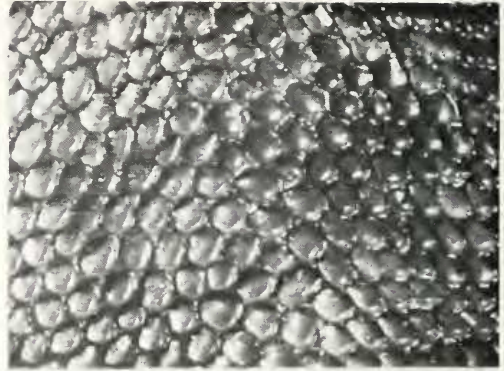
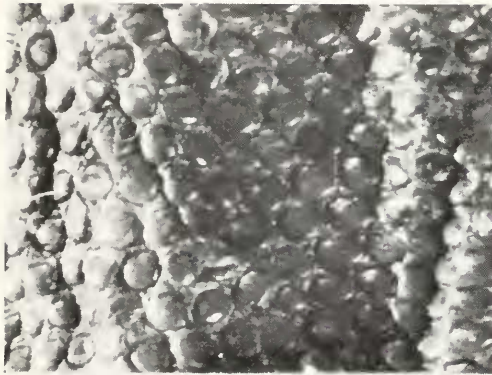


Plate 18. *Eremias brevirostris* sspp., middorsal scales of:

A, B, *E. b. fieldi*:

A, MCZ 56618, ♀ paratype.

B, MCZ 56617, ♂, type.

C–F, *E. b. brevirostris*:

C, MCZ 56567, ♂ from Arabia.

D, MCZ 56592, ♂ from Iraq.

E, MCZ 56587, ♀ from Syria.

F, MCZ 54441, from West Pakistan.

Scales: mm. The horizontal scale bar (near the lower right of each figure) represents 1 per cent of the snout–vent length of each specimen.

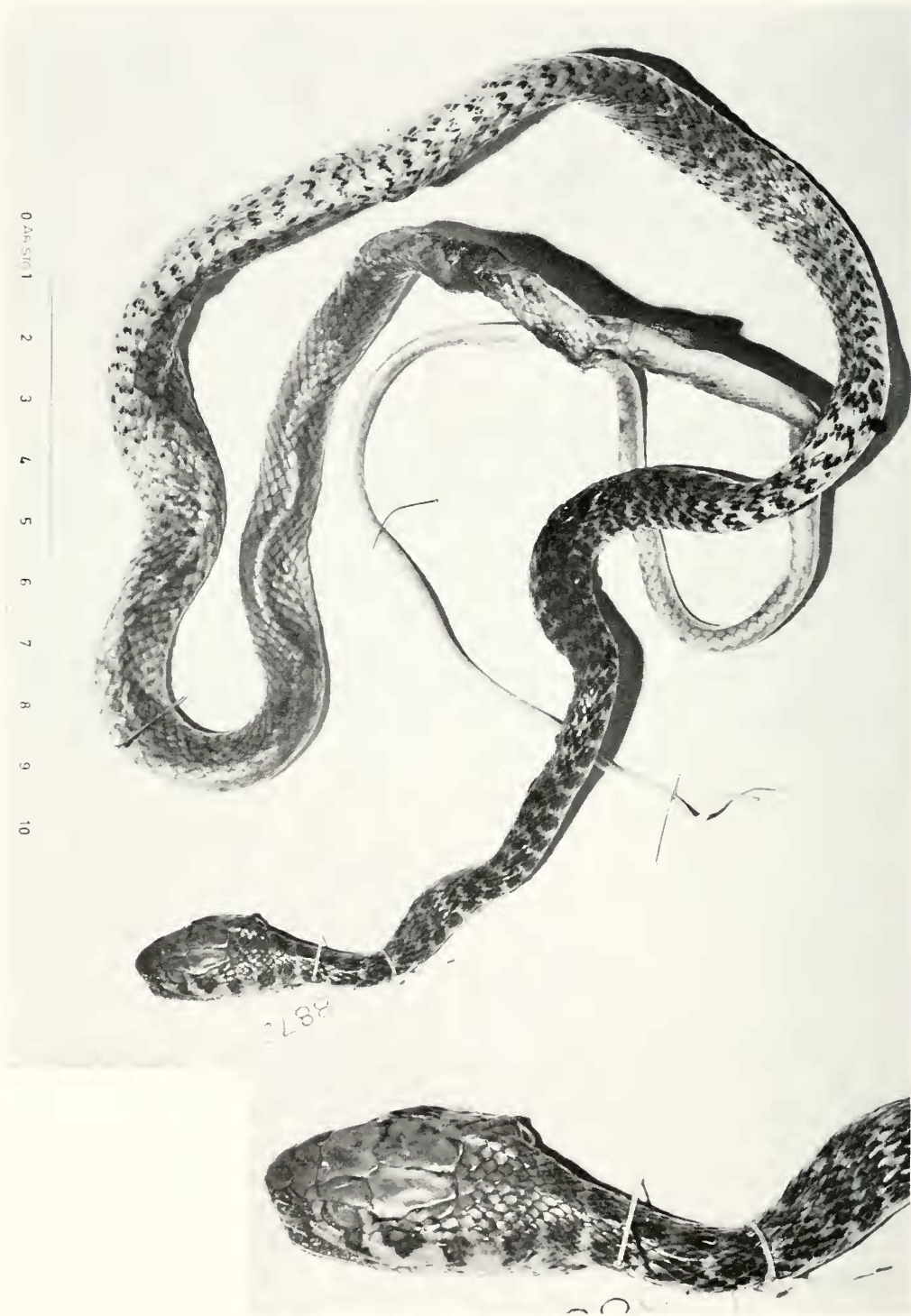




Plate 19. *Coluber rhodorachis rhodorachis*, MCZ 58872, from Iran (Mahor Birinji): Above, whole specimen; Below, head, dorsolateral view. Scale: cm and mm.

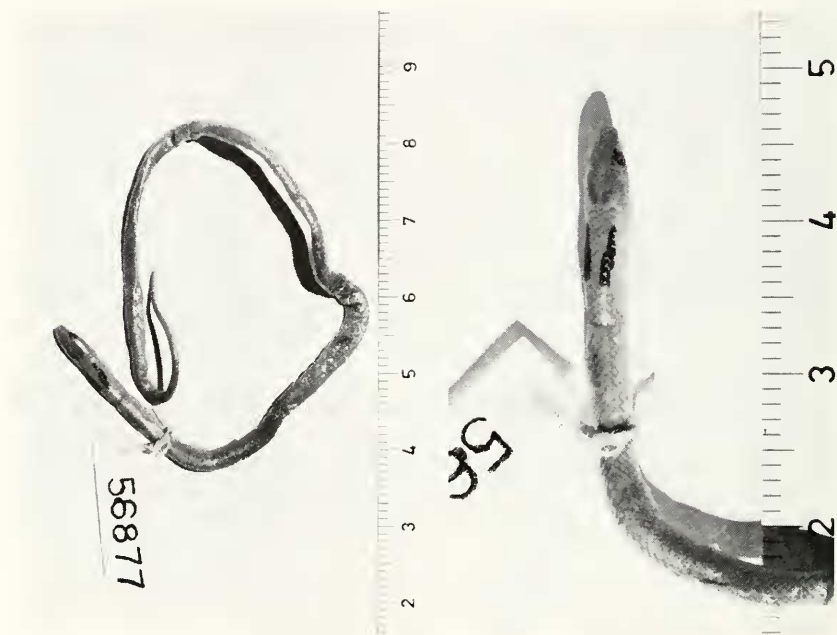


Plate 20. *Rhynchocalamus* sp., MCZ 56877, from Iran (Shalgahi): Left, whole specimen; Right, head, dorsolateral view. Scales: cm and mm.



Plate 21. *Walterinnesia aegyptia*, MCZ 56878, from Iran (Mahor Birinji). Scale: cm and mm.